

CORNELL UNIVERSITY OFFICIAL PUBLICATION

Announcement
of the College of
Arts and Sciences
for 1942-43



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The University Calendar for 1942-43

1942

FALL TERM

Sept.	9-10, <i>Wed.-Thurs.</i>	Entrance examinations.
Sept.	25, <i>Friday</i> ,	Pre-registration begins at 9 A.M.
Sept.	28, <i>Monday</i> ,	Registration and assignment, new students.
Sept.	29, <i>Tuesday</i> ,	Registration and assignment, old students.
Oct.	1, <i>Thursday</i> ,	Instruction begins at 8 A.M.
Oct.	22, <i>Thursday</i> ,	Last day for the payment of tuition for the fall term.
Nov.	26, <i>Thursday</i> ,	<i>Thanksgiving Day</i> , a holiday.
Dec.	19, <i>Saturday</i> ,	Instruction suspended at 12:50 P.M.

1943

(*Christmas Recess*)

Jan.	4, <i>Monday</i> ,	Instruction resumed at 8 A.M.
Jan.	11, <i>Monday</i> ,	Founder's Day.
Jan.	21, <i>Thursday</i> ,	Final examinations begin.
Jan.	28, <i>Thursday</i> ,	Final examinations end.

SPRING TERM

Jan.	29, <i>Friday</i> ,	Registration of all students.
Feb.	1, <i>Monday</i> ,	Instruction begins at 8 A.M.
Feb.	22, <i>Monday</i> ,	Last day for the payment of tuition for the spring term.
March	27, <i>Saturday</i> ,	Instruction suspended at 12:50 P.M.

(*Spring Recess*)

April	5, <i>Monday</i> ,	Instruction resumed at 8 A.M.
May	17, <i>Monday</i> ,	Final examinations begin.
May	22, <i>Saturday</i> ,	Final examinations end.
May	24, <i>Monday</i> ,	COMMENCEMENT.

CORNELL UNIVERSITY OFFICIAL PUBLICATION

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WILLIAM CHARLES MACQUOWN, JR., M.S., Assistant in Geology.
DOROTHY POWIS MARCUSE, B.A., Assistant in Sociology.
FREDERICK LAWRENCE MARCUSE, M.A., Assistant in Psychology.
WILLIAM GLENN MAYES, B.S., Assistant in Chemistry.
ALBERT RAYMOND MEAD, B.S., Assistant in Zoology.
ROBERT RANDEL MEIJER, A.B., Assistant in Physics.
HAROLD CLARK METCALFE, B.S. in Chem., Assistant in Chemistry.
GLENN HOUSTON MILLER, B.S., Assistant in Physics.
JOSEPH WILLIAM MILLER, M.A., Assistant in Speech.
WILLIAM RANSOM MONROE, M.S., Assistant in Physics.
WILLIAM MONTAGNA, A.B., Assistant in Zoology.
DONALD JOSEPH MONTGOMERY, Chem.E., Assistant in Physics.
RICHARD MOODY, M.A., Instructor in Speech and Drama.
LAWRENCE HENRY MOUAT, M.A., Instructor in Speech.
HAROLD I. NELSON, A.B., Assistant in History.
EDWARD LINDSAY NEWCOMB, A.B., Assistant in Geology.
W. STANLEY NEWCOMER, B.S., Assistant in Zoology.
GORDON MCGLOHON NICHOLS, M.S.Chem., Assistant in Chemistry.
CHARLES ROBERT NIXON, A.B., Assistant in Government.
E. WILLIAM NOLAND, A.M., Assistant in Sociology.
NEWTON HAYS ODELL, B.A., Assistant in Physics.
ARTHUR OLINER, B.A., Assistant in Physics.
JACK SYLVESTER OLSEN, M.A., Assistant in Chemistry.
GERALD OSTER, Sc.B., Assistant in Chemistry.
CULLEN BRYANT OWENS, M.S., Instructor in Speech.
ALFRED MILTON PEISER, M.A., Instructor in Mathematics.
RAYMOND PITZRICK, A.B., Assistant in Geology.
GEORGE FRANCIS POLZER, B.Chem., Assistant in Chemistry.
MAURICE PROBER, B.S., Assistant in Chemistry.
HARRY LYMAN RAUB, III, B.S., Assistant in Physics.
SHERMAN KENNEDY REED, B.S., Assistant in Chemistry.
RENÉ GEORGE RHODES, B.A., Assistant in Physics.
JOHN MEAD RICHARDSON, B.S., Assistant in Chemistry.
JAMES ALLEN ROBERTSON, M.A., Assistant in Chemistry.
ALBERT NARVIN ROBSON, JR., A.M., Assistant in History.
MARIO B. RODRIGUEZ, M.A., Instructor in the Romance Languages.
HAROLD ROSEGAY, M.S., Instructor in Zoology.
JAMES FRANCIS RYAN, JR., B.S. in Chem., Assistant in Chemistry.
CHARLES NEWELL ST. JOHN, JR., M.A., Instructor in the Romance Languages.
ROBERT JAMES SCHATZ, M.S., Assistant in Chemistry.
VICTOR EDWARD SCHMIDT, A.B., Assistant in Geology.
DANIEL SCOTT SEARS, B.S., Assistant in Chemistry.
JAMES EVERETT SEAVER, A.B., Assistant in History.
HOWARD EUGENE SHEFFER, M.S. Assistant in Chemistry.
JEROME COLBERT SMITH, M.A., Instructor in Mathematics.
MARTIN EDWARD SMITH, A.B., Assistant in Chemistry.
RALPH ALBERT SMITH, M.S., Assistant in Zoology.
RICHARD CRAINE SNYDER, A.M., Assistant in Zoology.
CHRISTIAN ROBERT SPORCK, Assistant in Chemistry.

FACULTY

11

FRANK SENDER STEIN, B.S., Assistant in Physics.
 LAWRENCE MARMER STOLUROW, B.A., Assistant in Psychology.
 ULRICH PAUL STRAUSS, A.B., Assistant in Chemistry.
 HAROLD ARTHUR STRECKER, A.B., Assistant in Chemistry.
 ORVILLE JOHN SWEETING, A.B., Assistant in Chemistry.
 HARRY JOHN SYKES, M.S., Assistant in Chemistry.
 GEORGE ELIAS TABET, M.Sc., Assistant in Chemistry.
 WILLIAM JOUETTE TAPP, B.S., Assistant in Chemistry.
 JACKSON JOHNSON TAYLOR, B.S., Assistant in Physics.
 JOHN HOWARD THATCHER, A.M., Instructor in Speech.
 DAVID WILLIAM THOMPSON, M.A., Assistant in Speech and Drama.
 ATWELL RUFUS TURQUETTE, M.A., Assistant in Philosophy.
 HARLAN LLOYD TUTHILL, B.S., Assistant in Chemistry.
 HELEN VASILIOU, B.A., Assistant in Speech.
 JACK HARPER VINCENT, M.A., Instructor in Economics.
 GORDON LOFTIS WALKER, Ph.D., Instructor in Mathematics.
 MAXWELL JOSEPH WALLACE, A.M., Instructor in the Romance Languages.
 CHARLES PHILIP WALTERS, M.S., Assistant in Geology.
 GEORGE WARFIELD, B.S., Assistant in Physics.
 ANDERS ERICK OTTO WEDBERG, Ph.D., Instructor in Philosophy.
 GEORGE MARTIN WEIMANN, A.B., Assistant in Chemistry.
 PAUL WELSH, B.S., Instructor in English.
 SANFORD GILES WHEELER, A.B., Assistant in Speech and Drama.
 RUSSELL GEORGE WHITESEL, M.A., Assistant in Government.
 JOHN FRANKLIN WHITNEY, B.S., Assistant in Chemistry.
 BEULAH BERNICE WILEY, A.B., Assistant in Speech and Drama.
 IRWIN WILSON, B.S., Assistant in Chemistry.
 WILLIAM ABELL WIMSATT, A.B., Assistant in Zoology.
 FIELD HOWARD WINSLOW, M.S., Assistant in Chemistry.
 ERNEST HERBERT WOOD, B.S., Assistant in Chemistry.
 ELIZABETH DOROTHY WORMAN, M.A., Instructor in Speech and Drama.
 RICHARD ELLIS WORTHINGTON, A.B., Instructor in Education.
 JOHN MOWLL WRIGHTSON, M.A., Assistant in Chemistry.

ARTS AND SCIENCES

THE COLLEGE OF ARTS AND SCIENCES offers instruction in classical and modern languages and literatures, in history and the social studies, in psychology, philosophy, and music, in mathematics, and in the natural sciences. The student is expected first to pursue certain courses which will complete his basic preparation in English, in a foreign language, in history, and in a laboratory science. During his second year he may select a major field of study for the remainder of his course. This requirement is broadly conceived to include a sequential and a related group of courses by means of which the student is enabled to secure a certain mastery of one non-technical field of knowledge. The remainder of his course of study is largely elective under the supervision of a faculty adviser whom he chooses, and who will assist him in making a reasonable and appropriate selection of courses. Many of the course offerings of the other colleges are available to him, not only as electives but also as related subjects in the fulfillment of his major requirements.

The general purpose of the College of Arts and Sciences is liberal and non-technical. The definition of a liberal college is found in the subjects which make up its curriculum, namely those subjects which in the history of human civilization have differentiated themselves as the means whereby man has come to understand himself and the world in which he lives. The meaning of a liberal education as thus conceived is a special knowledge of some general field of human understanding erected upon a fundamental training in science and the humanities and spreading into such related subjects as will give breadth as well as concentration of knowledge.

The facilities of the college are adequate in staff, housing, and equipment to give personal attention to the varying needs of individual students, especially those of a pre-vocational and pre-professional nature. Advanced courses and opportunities for research are available even in the undergraduate years to those who are qualified to make use of them, for in addition to his regular courses, a student may also work informally under the supervision of his major adviser, and thus in part complete his education in ways more flexible than the usual courses of study will permit. A student is expected to accept a large degree of personal responsibility for shaping his own courses of study, but the student's adviser stands ready to assist him in all possible ways to make the most of his opportunities.

REQUIREMENTS FOR ADMISSION

An applicant for admission to the College of Arts and Sciences must have completed a secondary school course giving satisfactory preparation for the work of the College. Fifteen units of entrance credit are required, representing at least four years' work in a high or preparatory school. The fifteen units should, in the main, be made up of English, foreign language (ancient or modern), mathematics, science, and social studies (including history). Each candidate for admission is required to write the Scholastic Aptitude Test of the College Entrance Examination Board and request the Board to report the result to the Director of Admissions, Cornell University.

Usually the number of applicants exceeds the limited number admissible. A Committee on Admissions selects those to be admitted in any year after a comparative study not only of formal preparation but also of evidences bearing on each applicant's character, seriousness of purpose, and fitness to undertake the work of the College.

Applicants for admission should consult the *General Information Number* issued by the University. That publication contains useful notes on expenses, scholarships, loan funds, and matters of general student interest. The *General Information Number* and all other official publications of Cornell University may be obtained on application to the Secretary of the University, Morrill Hall, Ithaca, New York. Application forms are to be had from the University Director of Admissions in Morrill Hall.

ADMISSION TO ADVANCED STANDING

A student admitted to the College of Arts and Sciences from another college of Cornell University, or from any other institution of collegiate rank, will receive credit toward the degree of Bachelor of Arts for the number of hours to which his records may, in the judgment of the Faculty, entitle him. In order, however, to obtain the degree of Bachelor of Arts, he must, as a candidate for that degree, have been in residence at least two terms in the College of Arts and Sciences, and in that college only, and he must have completed a minimum of thirty hours while thus enrolled.

Credit toward a degree for work done in a preparatory school, upon subjects which may be offered for entrance to the University, may be given only to those students who, in addition to satisfying all entrance requirements, pass separate examinations in the subjects for which they seek college credit. These examinations will cover substantially the same ground as the University courses in the corresponding subjects. An applicant who desires a college-credit examination of this kind must apply to the Office of Admissions as early as possible and in no case later than the day preceding the beginning of the entrance examinations, specifying which fifteen units he intends to offer in satisfaction of the entrance requirements, and upon what other entrance subjects he wishes to be examined for college credit.

In case he fails to satisfy the entrance requirements in any one or more of the subjects which he has offered for entrance, but passes the college-credit examination in any other subject or subjects, he may use the latter for satisfying the entrance requirements, but in that case he cannot also receive college credit therefor. The college-credit examinations will be held on the date set for the entrance examinations in the same subjects, and unless otherwise arranged, only at Ithaca.

To freshmen in the College of Arts and Sciences these college-credit examinations are open at the end of their first term as well as at entrance. Moreover freshmen of this College may take college-credit examinations in subjects for which no entrance credits have been offered provided they furnish the department concerned with evidence of preparation warranting the examination.

CREDIT FOR SUMMER SESSION

To obtain credit by means of work done in Cornell summer sessions, a student must previously have satisfied the entrance requirements of the College, and must obtain in advance the Dean's approval of his selection of courses. Credit for a maximum of thirty hours, but no more, may be secured in this way.

Credit will be allowed, under the same restrictions, for work done in summer sessions of other universities belonging to the Association of American Universities, by a student regularly registered in this College, but

permission to offer such credit must be obtained in advance from the Dean of this College.

REGISTRATION

Students will file their study cards at the office of the Dean in accordance with instructions issued at the time of registration.

With the consent of the Dean and the approval of his adviser, a student may alter his list of courses during the first ten days of instruction. Thereafter, no student will be permitted to cancel his registration for any course in which he is registered, unless he shall previously have obtained from the Dean authorization to do so on the ground of ill health, or for other reasons beyond the student's control.

REGISTRATION IN TWO COLLEGES OF THE UNIVERSITY. A student who has completed at least ninety hours in courses given in the College of Arts and Sciences may, with the permission of the Faculties concerned, be registered both in the College of Arts and Sciences and also in the Medical College or the Law School. (See MAJOR SUBJECTS, Section IIb.) It should be noted, however, that admission to the Medical College is closely restricted, and that in recent years the Medical College has been able to grant this privilege of double registration to only a small proportion of the fourth year students of the College of Arts and Sciences who applied and who were formally eligible for it.

COMBINED COURSES are offered in Arts and Sciences and Engineering whereby the student may obtain the two degrees in a six-year course. Suggested programs for such six-year courses in Arts and Sciences combined with Civil Engineering, Electrical Engineering, and Mechanical Engineering are published in the *Announcement of the College of Engineering*.

A combined course also leads to the degree A.B. and the degree Master of Fine Arts in a six-year course—see page 41 under Fine Arts.

Students who may be interested in these combined courses should consult the Dean's Office as early as possible.

REQUIREMENTS FOR GRADUATION

The College of Arts and Sciences offers one course only, leading to the degree of Bachelor of Arts. This degree will not be conferred upon any student who has not been in residence at Cornell during the last two terms preceding graduation, nor upon any student who has not been in residence during at least two terms in this College and in this College only.

THE DEGREE OF BACHELOR OF ARTS

For graduation with the degree Bachelor of Arts a candidate must meet the following requirements:

1. Credit for one hundred and twenty hours, of which at least ninety hours must be for courses given in the College of Arts and Sciences. Military Science 2 and courses in Hygiene, all of which are offered under the jurisdiction of the University but not of any College, may be counted as part of the thirty hours which a student may elect outside the College of Arts and Sciences, but may not be counted as part of the ninety hours required in the College.

2. A grade of 70 or better in at least sixty of the required one hundred and twenty hours. At least one-half of the major requirement, including related subjects (see page 16) must be passed with grades of 70 or better.

3. Election of courses in accordance with Sections I-II, Courses of Study.

4. Completion of the work in Hygiene and Preventive Medicine, and in Military Drill or in Physical Training prescribed by the University Faculty. (See pages 84-85.)

BACHELOR OF ARTS WITH DISTINCTION

The degree of Bachelor of Arts with Distinction in the field of a student's major subject will be conferred upon those students who, in addition to having completed the requirements for the degree of Bachelor of Arts, shall (1) have received a grade of 85 or better in at least sixty hours of the courses for which they have been enrolled and an average of 85 in the courses for which they have been enrolled in the field of their major subject and its related courses; (2) have, at the option of the department, taken and passed with distinction a comprehensive examination in the major subject; (3) have been recommended for the said degree by the department representing their major subject.

The degree of Bachelor of Arts with Distinction in General Studies will be conferred upon those students who, in addition to having completed the requirements for the degree Bachelor of Arts, shall (1) have received the grade of 80 or better in at least ninety hours of courses, and of 90 or better in at least sixty of these; (2) not have received a grade below 70 in more than one course; (3) have received no marks lower than 60. To qualify for the degree of Bachelor of Arts with Distinction in General Studies, a candidate must have completed at least sixty hours at Cornell in courses taught in the College of Arts and Sciences; and if he has received credit towards his degree for work done in another institution, the requirement of grades shall be prorated for the residue of work which must be completed in Arts and Sciences at Cornell.

COURSES OF STUDY

I. PRESCRIBED SUBJECTS.

Before graduation a student must satisfy a requirement in each of the following four groups either by completing the prescribed course or by passing a college-credit examination in its equivalent (see ADMISSION to ADVANCED STANDING, page 13, and COURSES OPEN TO FRESHMEN, paragraph d).

1. *English*, by completing English 2. Freshmen who elect Social Science A, B may substitute for English 2 the interdepartmental course *Oral and Written Expression*, described on page 82.

This course must be begun in the first year of residence. Students excused from the second term of English 2 may complete the requirement by other courses in English approved by the department, or by Public Speaking 1.

2. *Foreign Languages*, by completing one of the following:—Greek 2a and 2b; Latin 1a; Latin 1; German 4; German 5; French 4a and 5a; French 6;

Spanish 6; Italian 5; any more advanced six-hour course in these subjects.

A course in a foreign language must be included in the schedule of courses for the first year of residence.

3. *History*, by completing one of the following:—History 1; History 21; History 42; History 50; History 61; History 82 and 83; History 86 and 87.

4. *Laboratory Science*, by completing one of the following:—Astronomy 180 and 181; General Biology 1; Botany 1; Chemistry 102, or 104, or 110 and 115; Geology A; Physics 3 and 4, or 3 and 6; Zoology 1.

A normal schedule for a freshman will include courses in at least one of groups 3 and 4.

II. MAJOR SUBJECTS.

a. *Selection of major subject and adviser.* After the first year of residence and before registering for the first term of the third year, a student must select his major subject from options offered by the departments listed below. He must at the same time select as major adviser a designated representative from the department in which he has selected his major subject. During the remainder of his residence he will consult with his major adviser in arranging his course and must obtain his signature to the study card before filing it in the Dean's office.

Astronomy
Botany
Chemistry
The Classics
Comparative Study of
Literature
Economics
English
The Fine Arts
Geology
German
Government
History

Mathematics
Music
Philosophy
Physics
Psychology
Romance Languages
Scandinavian Languages and
Literatures
Slavic Languages and
Literatures
Sociology and Anthropology
Speech and Drama
Zoology

b. *Major Requirements.* Before graduation, a student must complete courses in satisfaction of the requirement in his major subject. A statement of this requirement, indicating courses and total hours required, appears before the list of courses in each of the departments. He must also complete courses in satisfaction of a requirement in related subjects. A statement of this requirement, with a list of courses from which selection is to be made, appears at the same place. Selection of courses to be offered in satisfaction of these requirements is subject to the restriction that twenty-four hours of the total must be chosen from courses not marked by asterisks. If a comprehensive examination is included in the requirements of the major subject, this must be passed before graduation.

Courses completed before the selection of the major subject, including those offered in satisfaction of requirements in prescribed subjects, may be accepted in satisfaction of these requirements.

Upon recommendation of the major adviser, the Dean may excuse a student registered in this College and in another college of the University from not more than eighteen hours of his major requirements.

c. Informal Study.

The major requirements in certain subjects may be satisfied in part by informal study. A statement to this effect appears before the list of courses in those subjects in which informal study is arranged. Departments may require informal study of some or all of their major students, or may admit them to it upon application.

Informal study will consist of reading, reports, experimentation, senior theses, or other work intended to require from the student the expression of initiative in his major subject or in a related field approved by his adviser. This work will be supervised by the major adviser or by a member of the instructing staff approved by him, and may be tested by examination at the option of the department.

A student who has credit for sixty hours of courses is eligible for informal study. He may earn credit by this means to the amount of six hours in the junior year, and of twelve hours in the senior year.

III. COURSES OPEN TO FRESHMEN.

a. The following are the courses in the College of Arts and Sciences open to freshmen, except that (1) a student may not register for any of these courses for which he has not satisfied the prerequisites, if any are specified (see announcement under each course); (2) a student may not register for any of these courses for which he has presented an acceptable equivalent at entrance:

Astronomy 180, 181
Biology 1
Botany 1
Chemistry 102, 104, 110, 115, 203
English 2, 2a, 15
Fine Arts A, 1a, 1b, 10a, 10b, 309
French 1, 3a, 4a, 4b, 5a, 5b, 5b, 6, 10, 16
Geology A, 100, 401
German 1, 1a, 3, 3a, 4, 5, 6, 8
Government 1, 2, 3
Greek 1a, 1b, 2a, 2b, 5
History 1, 21, 61
Italian 1, 5
Latin A, 1a, 1, 2
Mathematics 1, 5, 10, 15, 20, 55, 65
Music 1, 13, 15
Oral and Written Expression, A, B
Philosophy A, 1a, 1b, 2
Physics 3, 4, 6, 11, 12
Physiology 303
Social Science A and B
Spanish 1, 3a, 6, 8
Speech and Drama 30, 40
Zoology 1, 9

b. Pre-induction course for students preparing for military service.

A new four-unit course, open to election by freshmen, and, in part, by

sophomores, will be offered in 1942-43 for the benefit of students taking one of the Army or Navy programs, or as part of a pre-induction preparation for military service of a general kind. There are four components of this course; no one part may be taken for credit without the others.

The course for freshmen consists of:

(1) The basic course in Military Science and Tactics, with academic credit of one hour a term for those who elect to take the other parts of the unit course.

(2) A course in physical training with credit of one hour a term provided the student is taking the other parts of this unit course. Participation of four hours a week in the physical training program is required.

(3) A course emphasizing the military aspects of personal and group hygiene, giving credit of one hour a term to students who take the other parts of the unit course.

(4) A course in military and naval geography in the first term to give one hour of credit to students taking the other components of the unit course; a one-hour course in military and naval history given under similar conditions for one hour of credit in the second term.

For sophomores:

(1) The basic course in Military Science and Tactics continued with credit of one hour a term for those who elect the other parts of the unit course.

(2) Physical training, giving credit of one hour a term for participation of four hours a week to students who take the other parts of the unit course.

(3) One one-hour course, giving one hour of credit, to be arranged, each term, in place of military geography and history.

c. Subject to the permission mentioned in Section IV, NUMBER OF HOURS, required courses in other colleges in the regular freshman schedule of those colleges may be selected by a freshman in the College of Arts and Sciences, but only after the approval of the Dean of his College and of his adviser has been obtained.

d. Under exceptional circumstances, a freshman may by petition secure permission from the Advisory Board for Underclassmen to take courses (including freshman electives in other colleges) in addition to those allowed under a and b.

e. With the permission of the department concerned, a freshman at the end of the first term of a year-course may take a credit examination covering the work of the second term of the course also. This provision applies not only to year-courses but also to such second-term courses as are natural continuations of first-term courses (e.g. Physics 4, following Physics 3, French 4b, following French 4a). The privilege is limited to students of high standing as defined by the department.

IV. NUMBER OF HOURS.

A freshman will ordinarily register for sixteen hours of work, including the one hour of Hygiene 1, in his first term.

Every student must register in each term for at least twelve hours; no student may register for more than eighteen hours in any term except by

permission of the Dean. A student who has not attained in any academic year a grade of 70 or better in a total of fifteen hours of work will not be permitted to elect more than fifteen hours of work in either term of the subsequent academic year. A student on probation may not register for more than fifteen hours in the term of his probation unless he includes Hygiene 1 or 2 in his programme which may then total sixteen hours. For registration in a course not in the College of Arts and Sciences, the permission of the Dean of this College and of the Professor in charge of the course must be obtained.

ADVISERS

Freshmen and sophomores are under the jurisdiction of the Advisory Board for Underclassmen. Each freshman will be assigned to a member of the Faculty who will act as his adviser until he has selected his major adviser. (See page 16, MAJOR SUBJECTS a.) The function of the freshman adviser is to assist the student in his choice of studies, to advise him during the term regarding his work, and generally to give him friendly counsel. The approval of the study card and the signature of the adviser must be obtained before the study card is filed at the office of the Dean.

Special advisory committees have been set up to assist members of the College intending to teach in secondary schools and those intending to study medicine. Interested freshmen are urged to consult early with the proper chairman: for prospective teachers, Associate Professor M. L. HULSE, Goldwin Smith 251; for pre-medical students, Associate Professor V. S. LAWRENCE, JR., White 124.

MARKS AND SCHOLASTIC DISCIPLINE

The passing grade is 60; *abs* represents a course left incomplete by a student's absence from the final examination; *inc* represents a course left incomplete for other reasons acceptable to the instructor; *z*, a course dropped without official cancellation.

No credit towards graduation will be given for a course in which a mark of less than 60 or a mark of *z* is recorded, unless the course be repeated and a passing mark received. A student who has received a mark between 50 and 59, inclusive, in any course that is a prerequisite of any other course may, at the discretion of the department concerned, be regarded as having satisfied the prerequisite; or the department concerned may, before regarding him as having satisfied the prerequisite, require him, by re-examination or otherwise, to secure a passing grade. In a year-course in which credit is given only on completion of the entire course, a student may not continue with the second term unless he has received 50 or better as his tentative mark for the first term.

A student who, in any course, has received a term mark of "incomplete" or of "absent" may, with the consent of the Dean, and upon payment of the fee required by the University, be permitted to remove the mark, by examination or otherwise, as the department concerned may direct. A mark of incomplete or of absent may not be removed later than registration day of the third term of attendance in the University, dating from the time the course was taken in class, and no more than one attempt at removal will be allowed.

A student who does not pass twelve hours in any term, with a grade of 70 or better in at least six of the twelve hours, will be either dropped or placed upon probation. The same penalties may be imposed on students of the College who, having registered in the Summer Session, do not pass a proportionate part of their Summer Session registration with satisfactory grades. Students on probation may not register in any Summer Session other than the Cornell Summer Session with the expectation of receiving credit in this College.

A student's general record may be so unsatisfactory that the Faculty will refuse him permission to continue in the College even though he has passed twelve hours in the preceding term.

A student failing in the last term, or summer session, of his senior year to meet the requirements in hours and grades which is described above, will ordinarily be expected to return for another term, or summer session, wherein he will be held to make a satisfactory record before he will be graduated.

SCHOLARSHIPS

Scholarships open to students of Arts and Sciences as members of the University are listed in the *General Information Number* (see page 39). Only students of Arts and Sciences are eligible for the four scholarships described below.

THE GEORGE C. BOLDT MEMORIAL SCHOLARSHIPS

Mr. George C. Boldt, jr., has created three scholarships, each of them worth four hundred dollars in 1943, as a memorial to his father. These scholarships will be awarded at the close of the junior year to the three men students of the College who shall be considered most deserving of this aid. Applications for these scholarships must be filed in the Office of the Dean before March 15 of the academic year preceding the year for which they are awarded. Students enrolled both in this College and in the Law School, the Medical College, or the Graduate School are not eligible.

THE CORNELIA L. HALL SCHOLARSHIP

A gift of the late Mary F. Hall has established the Cornelia L. Hall Scholarship, worth one hundred and twenty dollars, "open to any meritorious young woman of this State, who is pursuing the studies of the A.B. course and who is in need of financial assistance." Under the terms of the bequest preference must be given to a suitable candidate from Tioga, Tompkins, or Chemung County; within this preferred class, women of senior or junior standing will be regarded as entitled to first consideration. Applications for the scholarship must be filed in the Office of the Dean before March 15 of the academic year preceding the year for which it is awarded.

THE STUDENT'S EXPENSES

For the amount of tuition, fees, board, room, and other student expenses, see *The General Information Number*, pages 32-38.

COURSES OF INSTRUCTION

ASTRONOMY

For a major in Astronomy the following courses must be completed: (1) in Astronomy, 180, 181, 186, 187, 189; (2) in related subjects, at least eighteen hours selected from approved courses in Physics, Chemistry, Mathematics, and Geology.

*180. **Introduction to Astronomy.** First term. Credit three hours. Lectures and recitations, T Th 9. *Rockefeller C.* One two-hour laboratory or observation period a week to be arranged. Mr. SHAW.

This course is designed to give the student an understanding of the fundamentals of Astronomy. Emphasis will be placed on the astronomy of the solar system and on the contributions of Astronomy to the sciences, philosophy, and general culture. Ample opportunity for observation of the celestial bodies with the great telescope and for constellation study will be offered.

*181. **Introduction to Astronomy.** Second term. Credit three hours. Prerequisite, Astronomy 180. Lectures and recitations, T Th 9. *Rockefeller C.* Laboratory period to be arranged. Mr. SHAW.

A continuation of course 180 with emphasis on the astronomy of the sidereal universe. Laboratory work deals largely with observation of the moon and planets and the nature of their orbits and motions.

182. **Elements of Field Astronomy.** Second term. Credit two hours. See Announcement of the College of Engineering.

183. **Navigation and Nautical Astronomy.** Any term. Credit three hours. See Announcement of the College of Engineering.

186. **Geodetic Astronomy.** Either term or throughout the year. Credit three hours a term. See Announcement of the College of Engineering.

187. **Advanced Astronomy.** Throughout the year. Credit three hours a term. Prerequisites, consent of the instructor. Hours to be arranged. Mr. SHAW and staff.

A detailed study of the present-day problems and progress in planetary, stellar, and nebular structure and dynamics.

189. **Informal Study.** Either term or throughout the year. Credit one to three hours. Mr. SHAW and staff.

Investigation of special topics selected according to the needs and preparation of the student. Suggested topics include: history of astronomy, meteors, comets, origin of the solar system, variable stars, spectroscopic binaries, nebulae, mathematical astronomy. If the demand is sufficient, topics may be given formally.

190. **Astrophysics.** Throughout the year. Credit three hours a term. Prerequisite, Astronomy 181, Mathematics 41, and the consent of the instructor. Mr. SHAW.

A detailed study of the nature and structure of stellar atmospheres and related problems with particular reference to the sun.

[191. **Theoretical Astrophysics.** Throughout the year. Credit three hours a term. Not given in 1942-43.]

See Graduate School Announcement.

195. **Astrophysics Laboratory.** Throughout the year. Credit variable.

See Graduate School Announcement.

[197. **Theoretical Astronomy.** Throughout the year. Credit three hours a term.

See Graduate School Announcement. Not given in 1942-43.]

199. **Advanced Study and Research.** Either term or throughout the year. Credit variable.

See Graduate School Announcement.

BIBLIOLOGY

Bibliology 1. (Bibliography). First term. Credit two hours. The book as a source of information. The reference book; the handbook; book lists, general and special; catalogues and trade lists and their use. Mr. KINKELDEY. T Th 12. *University Library.*

Bibliology 2. Second term. Credit two hours. The Book; its origin and evolution. Not a literary course, but a study of the book as a means of the conservation of thought, a manifestation of civilization and culture, its relation to the arts and crafts. Mr. KINKELDEY. T Th 12. *University Library*.

BOTANY

For a major in Botany the following courses must be completed: (1) in Botany, courses 1, 31, 117, 123 or 124 or 126; one additional course of three or more hours credit; (2) in related subjects, eighteen hours selected from approved courses in Chemistry, Biochemistry, Entomology, Zoology, Bacteriology, Plant Pathology, and Geology. The course in Genetics may be offered either as a course in Botany or in the related subjects.

For a major in Botany with advanced work in Bacteriology, the following courses must be completed: (1) in Botany, courses 1, 31, 117; in Bacteriology, eight hours of advanced courses approved by the Department of Botany; (2) in related subjects, eighteen hours to be selected from the list given in the paragraph above.

Provisions are made for a limited number of students to undertake informal study.

***1. General Botany.** Throughout the year. Credit three hours a term. If taken after General Biology 1, credit two hours a term. Mr. PETRY, instructors, and assistants. Lectures, T Th 9 or 11. *Plant Science* 233. Laboratory, one period of two and one-half hours. *Plant Science* 240, 242, and 262.

A survey of the fundamental facts and principles of plant life. The work of the first term deals with the structures and functions of the higher plants, with special emphasis on their nutrition. The work of the second term traces the evolution of the plant kingdom, as illustrated by representatives of the principal groups, and concludes with a brief introduction to the principles of classification of the flowering plants. Laboratory fee, \$3.50 a term.

13. Trees and Shrubs. First term. Credit four hours. Prerequisite, course 1 or its equivalent. Mr. CLAUSEN. Lecture, T Th 9. *Plant Science* 143. Laboratory or field work, M W or T Th 1:40-4. *Plant Science* 211.

The identification of trees and shrubs, in summer and in winter conditions. During the first part of the term the work covering identification is done largely in the field. The work of the latter part of the term is a study of the classification of woody plants. Laboratory fee, \$4.

31. Plant Physiology. First or second term. Credit four hours. Prerequisite, course 1 and introductory chemistry. Mr. KNUDSON, Mr. O. F. CURTIS, or Mr. CLARK, and assistants. Lectures, T Th 10. *Plant Science* 233. Laboratory, T Th 1:40-4 or W F 1:40-4. *Plant Science* 227.

This course is designed to acquaint the student with the general principles of plant physiology. Topics such as water relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, growth, and reproduction are studied in detail. Particular emphasis is placed, both in laboratory and in classroom, on discussion of principles and their application to plants. Laboratory fee, \$4; deposit, \$3.

115. Aquatic Plants. Second term. Credit three hours. Prerequisite, course 1 or its equivalent. Lecture, M 9. *Plant Science* 353. Laboratory, M W 1:40-4. *Plant Science* 353. Mr. MUENSCHER.

A study of the taxonomy and ecology of fresh water plants, beginning with the algae and concluding with the aquatic angiosperms. Laboratory fee, \$4.

117. Taxonomy of Vascular Plants. Second term. Credit four hours. Prerequisite, course 1 or its equivalent. Mr. CLAUSEN. Lectures, T Th 9. *Plant Science* 143. Laboratory, T Th or W F 1:40-4. *Plant Science* 211.

A study of the kinds of seed plants and ferns, their classification into genera, families, and orders, and field work on the local flora. Emphasis is placed on wild plants, but the more common cultivated plants receive some attention. The course is planned to follow course 1 and to furnish an introduction to the knowledge of field botany and classification of the higher plants, in preparation for special work in various departments, and as an aid in teaching. Instruction is given in the preparation of an herbarium and of keys. Laboratory fee, \$4; deposit, \$5. Several afternoon and one or two all-day field trips are scheduled in May.

Students completing this course may arrange, under course 171, to pursue special advanced work in taxonomy.

Genetics. (See Plant Breeding 101, *Announcement of College of Agriculture*.) First term. Credit four hours. Mr. ———. Lectures, M W F 8. *Plant Science* 233. Laboratory, M T W or F 1:40-4.

Comparative Morphology of Fungi. (See Plant Pathology 121, *Announcement of College of Agriculture*.) Second term. Credit four hours. Prerequisite, Botany 1 or its equivalent, and permission of the instructor. Lectures, M W F 11. *Plant Science* 336. Laboratory, M W 2-4:30. *Plant Science* 329. Mr. FITZPATRICK. Given in alternate years.

A synoptical course designed to introduce the beginner to the general field of mycology.

123. Plant Anatomy. First term. Credit four hours. Prerequisite, course 1 or its equivalent, and permission to register. Laboratory, T 9-12:30; Th 9-11:30. Lecture to be arranged within these periods. *Plant Science* 228. Mr. BLASER.

This course is designed to give a working acquaintance with the internal morphology of vascular plants, and emphasis is placed on practice in interpretation and determination of material. The course is planned primarily for students in applied fields of botany, such as pathology, pomology, or genetics. Students desiring a less detailed training in this subject should take course 126. Laboratory fee, \$5.

124. Cytology. First term. Credit four hours. Prerequisite, course 1 or Zoology 1 or its equivalent. Mr. L. W. SHARP. Lectures, M W 9. *Plant Science* 143. Laboratory, M W or T Th 10-12:30. *Plant Science* 219. Assignment to laboratory section must be made at the time of registration.

The principal topics considered are protoplasm, cells and their components, nuclear and cell division, meiosis and fertilization, and the relation of these to the problems of development, reproduction, and heredity. Both plant and animal materials are used. Microtechnique is not included. Laboratory fee, \$5.

126. Morphology of Vascular Plants. First and second terms. Credit three hours a term. Mr. EAMES. Lecture, F 9. *Plant Science* 143. Laboratory, W 10-12:30, F 10-12:30. *Plant Science* 228. Prerequisite, course 1 or its equivalent, and permission to register. First term prerequisite to second.

An advanced course in the comparative morphology, life histories, and phylogeny of vascular plants. Laboratory fee, \$5.

[161. History of Botany. Second term, without credit. Hour to be arranged. *Plant Science* Seminar Room.

A course of lectures given by various members of the staff with the purpose of acquainting advanced students of botany with the historical development of their science. Not given in 1942-43.]

171. Special Problems in General Botany, Taxonomy, Morphology, Anatomy, Economic Botany, Paleobotany, Cytology, and Physiology. Throughout the year. Credit not less than two hours a term. By appointment. Messrs. KNUDSON, EAMES, L. W. SHARP, O. F. CURTIS, PETRY, L. F. RANDOLPH, MUENSCHER, CLARK, and CLAUSEN.

Students engaged in special problems or making special studies may register in this course. They must satisfy the instructor under whom the work is taken that their preparation warrants their choice of problem. The laboratory fee depends on the nature of the work and on the number of credit hours.

219. Advanced Taxonomy of Vascular Plants. First term. Credit two hours. Prerequisite, course 117 or its equivalent and training in cytology and genetics. Mr. CLAUSEN. Lecture, S 9. Laboratory, S 10-12:30.

A course designed particularly for students majoring in taxonomy. Emphasis is placed on the three phases of taxonomic study: floristics, experimental taxonomy, and monographing. The work of the first part of the term will be done largely in the field and there will be at least two full week-end trips. In the latter part of the term each student will do practical work on some group of plants.

224. Advanced Cytology. Second term. Credit two hours. Prerequisites, course 124, Plant Breeding 101, and permission to register. Mr. L. W. SHARP. Lecture, W 9. *Plant Science* 143. Laboratory and seminar to be arranged.

An advanced course dealing mainly with the physical basis of heredity and with recent researches in cytogenetics.

231. Plant Physiology, Advanced lecture course. Throughout the year. Credit three hours a term. Prerequisite, training in botany and chemistry, to be determined in each case by the department. Limited to seniors and graduate students. Messrs. KNUDSON and O. F. CURTIS. Lectures, M W F 10. *Plant Science* 143.

232. Plant Physiology, Advanced laboratory course. Throughout the year. Credit three hours a term. Prerequisite or parallel course, 231. Messrs. KNUDSON, O. F. CURTIS, and CLARK. Laboratory, M 1:40-4, S 8-12:30. *Plant Science* 241. Laboratory fee, each term, \$10; breakage deposit, \$5.

For other courses in Botany see the Announcement of the College of Agriculture.

BACTERIOLOGY

For courses in this subject, see the Announcements of the Colleges of Agriculture and Veterinary Medicine. These courses may be counted as part of the thirty hours which the student may elect outside the College of Arts and Sciences. For a major in Botany with advanced work in Bacteriology, see the statement of major requirements in Botany.

CHEMISTRY

All courses listed below are to be given in the Baker Laboratory of Chemistry.

For a major in Chemistry, the following courses must be completed: (1) in Chemistry, courses 102 or 104, 205 and 206, or 210; or preferably 110, 115, and 203; 220 and 221, or 225; 305, 310 (first term); 406, 410 (one term); and six hours of electives; (2) and related subjects, Mathematics 5a and 5b, or 6a, 6b, and 6c, Physics 3 and 4 or 3 and 6, German 1 or 1a unless two units have been offered for entrance.

INORGANIC CHEMISTRY

Students exceptionally well prepared in chemistry should read the section on page 13, in regard to College Credit Examinations.

Examinations for those who were unavoidably absent from the final examination in Courses 102 and 104 will be held at 2 p. m. on the day before instruction begins in the fall.

***102. General Chemistry.** Throughout the year. Credit three hours a term. First term prerequisite to second. Open only to those students who do not offer entrance chemistry. Deposit, \$11 each term. Mr. BROWNE, Mr. LAUBENGAYER, Mr. TAUBE, and assistants. Lecture: Th or F 11, Main Lecture Room, *Baker*. Recitation: one hour a week, to be arranged. Laboratory: M T W Th or F 1:40-4.

This course deals with the fundamental laws and theories of chemistry and the properties of the more common elements and their compounds.

***104. General Chemistry.** Throughout the year. Credit three hours a term. First term prerequisite to second. Open to those students who offer entrance chemistry. Deposit, \$11 each term. Mr. PAPISH, Mr. EATON, and assistants. Lecture: M 11, T 9 or T 11, Main Lecture Room, *Baker*. Recitation: one hour a week, to be arranged. Laboratory: M T W Th or F 1:40-4.

This course deals with the fundamental laws and theories of chemistry and the properties of the more common elements and their compounds.

***110. Introductory Inorganic Chemistry.** Throughout the year. Credit three hours first term, two hours second term. Prerequisite, entrance credit in chemistry, or course 102. Required of candidates for the degree of B.Chem.Eng., and recommended for candidates for the degree of A.B. who intend to major in Chemistry.

Lectures: Mr. LAUBENGAYER. First term, M W F 8; second term, W F 8. *Baker* 107.

***115. Introductory Inorganic Chemistry.** Recitations and laboratory practice. First term. Credit three hours. Must be taken with the first term of Chemistry 110. Deposit, \$20. Mr. LAUBENGAYER and assistants.

Recitations: one hour a week, to be arranged.

Laboratory: W F 10-12:30. S 8-1. *Baker* 50.

130. Advanced Inorganic Chemistry. Throughout the year. Credit three hours a term. Prerequisite or parallel courses, Chemistry 405 or 406. Professor LAUBENGAYER. M W F 11. *Baker* 107.

The elements are discussed in the order in which they appear in the Periodic System, with special attention to the bearing of atomic structure on the properties of elements and their compounds and on the relations between the group. The less familiar elements are treated in detail and the stereochemistry of inorganic substances is considered.

135. Advanced Inorganic Chemistry. Either term. Credit two to six hours. Prerequisite, Chemistry 305 and 310. Deposit variable. Mr. BROWNE, Mr. LAUBENGAYER, and assistants. Day and hour to be arranged. *Baker* 178 and 122.

Laboratory practice. The preparation, purification, properties, and reactions of inorganic compounds including those of the rarer elements.

Chemistry 135 is designed to accompany Chemistry 130, but either course may be taken separately.

140. Selected Topics in Advanced Inorganic Chemistry. Second term. Credit two hours. Prerequisite, Chemistry 405 and 410, or special permission. Mr. BROWNE. W F 9. *Baker* 107. Given in alternate years.

[165. Chemistry of the Rare Elements. Second term. Credit two or more hours. Prerequisite, Chemistry 130. Deposit variable. Mr. PAPISH and assistant. Hours to be arranged. *Baker* 318. Not given in 1942-43.]

Laboratory practice. Extraction, recovery, and purification of the rare elements, and preparation of their salts. Chemical analysis of the rare elements.

195. Research for Seniors. Throughout the year. Credit two or more hours a term. Fee variable. Messrs. BROWNE, PAPISH, and LAUBENGAYER.

ANALYTICAL CHEMISTRY

***201. Introductory Analytical Chemistry.** First term. Credit four hours. Prerequisite, Chemistry 102 or 104. Deposit, \$25. Primarily for students majoring in the biological sciences. Mr. NICHOLS and assistants. Lectures: T Th 10. *Baker* 177.

Laboratory sections: M W 1:40-4; S 8-1. *Baker* 252.

A study of the fundamental principles of qualitative and quantitative analysis. Laboratory practice in gravimetric and volumetric quantitative methods.

***203. Introductory Qualitative Analysis.** Second term. Credit five hours. Prerequisite, Chemistry 115 and one term of Chemistry 110, or special permission. Deposit, \$30. Must be taken with the second term of Chemistry 110. Required of candidates for the degree of B.Chem.Eng. and recommended for candidates for the degree of A.B. who intend to major in Chemistry. Mr. LONG, Mr. BAUER, and assistants.

Lecture: M 8. *Baker* 200. One recitation to be arranged.

Laboratory: M W F 1:40-4; or T Th 1:40-4, S 8-10:30. *Baker* 50.

***205. Introductory Qualitative Analysis.** First term. Credit three hours. Prerequisite, Chemistry 102 or 104. Must be taken with Course 206. Mr. LONG, Mr. BAUER, and assistants. Lecture: M W 9. *Baker* 22.

Recitation: F 9. *Baker* 22.

A study of the application of the theories of general chemistry to the systematic separation and detection of the common elements and acid radicals.

***206. Introductory Qualitative Analysis.** First term. Credit three hours. Prerequisite, Chemistry 102 or 104. Deposit, \$25. Must be taken with Course 205. Mr. LONG, Mr. BAUER, and assistants.

Laboratory section: M W F 1:40-4. *Baker* 50.

Laboratory practice. A study of the properties and reactions of the common elements and acid radicals; the qualitative analysis of a number of solutions and solid compounds.

***210. Introductory Qualitative Analysis.** Shorter course. Repeated in the second term. Credit three hours. Prerequisite, Chemistry 102 or 104. Deposit, \$20. Mr. LONG, Mr. BAUER, and assistants.

Lecture: W 12. First term. *Baker* 200; second term, *Baker* 107.

Laboratory sections: T Th 8-10:30; T Th 1:40-4 (first term only). *Baker* 50.

A study of the properties and reactions of the common elements and acid radicals, and their detection in various solutions.

***220. Introductory Quantitative Analysis.** Repeated in the second term. Credit three hours. Prerequisite, Chemistry 203, or 205 and 206. Must be taken with Course 221. Mr. NICHOLS, Mr. WATERS, and assistants.

Lectures: T Th 9. *Baker* 207. Recitation: First term, M 10, T 8, F 8, F 11; second term, one hour a week, to be arranged.

A study of the fundamental principles of gravimetric and volumetric analysis with practice in stoichiometry.

Students in science and majors in Chemistry are advised to take this course together with Course 221 instead of Course 225.

***221. Introductory Quantitative Analysis.** Repeated in the second term. Credit three hours. Prerequisite, Chemistry 203, or 205 and 206. Must be taken with Course 220. Deposit, \$25. Mr. NICHOLS, Mr. WATERS, and assistants.

Laboratory sections: F 1:40-4, S 8-1; T Th 10-12:30, Th 1:40-4 (first term only). *Baker 252.*

Laboratory practice in the preparation and standardization of various volumetric solutions and the analysis of a variety of substances by volumetric and gravimetric methods.

Students in science and majors in Chemistry are advised to take this course together with Course 220 instead of Course 225.

***225. Introductory Quantitative Analysis.** Shorter course. Repeated in the second term. Credit three hours. Prerequisite, Chemistry 210. Deposit, \$25. Mr. WATTERS and assistants.

Lecture: Th 12. First term. *Baker 207*; second term, *Baker 200.*

Laboratory sections: First term, M W 1:40-4, T Th 8-10:30; second term, T Th 8-10:30; W F 1:40-4; T Th 1:40-4. *Baker 252.*

A study of the fundamental principles of gravimetric and volumetric analysis, and the analysis of various substances by these methods.

230. Advanced Quantitative Analysis. Second term. Credit three hours. Prerequisite, Chemistry 220 and 221 or special permission. Deposit, \$20. Mr. NICHOLS, Mr. WATTERS, and assistants. Recitations: one hour a week, to be arranged. Laboratory periods: T Th 1:40-4; T Th 8-12:30; S 8-1. *Baker 294.*

Students will be assigned to a combination of laboratory periods that will total seven and one-half hours a week.

The calibration of weights and volumetric apparatus; the analysis of ferrous and non-ferrous alloys, silicates, and organic substances by various gravimetric, volumetric, and combustion methods.

235. Advanced Quantitative Analysis. Second term. Credit two hours. Prerequisite, first term of Chemistry 405. Mr. NICHOLS. W F 9. *Baker 207.*

A discussion of selected topics in quantitative analysis, and the development and present status of various analytical methods. Given in alternate years.

250. Gas and Fuel Analysis. Either term. Credit three hours. Prerequisite, Chemistry 220 and 221. Fee, \$10. Mr. NICHOLS and assistants.

Lecture: F 10. *Baker 207.*

Laboratory sections: First term, M T 1:40-4; T Th 10-12:30; Th F 1:40-4; S 8-1; second term, M T 1:40-4; T Th 10-12:30; W Th 1:40-4; S 8-1. *Baker 282.*

The complete analysis of coal gas, flue gas, and air, the determination of the heating power of gaseous, liquid, and solid fuels; the analysis of coal; standard methods of testing various petroleum and coal-tar products; the analysis of various substances by methods involving the use of different types of gas evolution apparatus. Problems are assigned which afford practice in the calculation and interpretation of results.

270. Special Methods of Quantitative Analysis. Either term. Credit two or more hours. Prerequisite, Chemistry 230 and 405. Deposit variable. Mr. NICHOLS, Mr. WATTERS, and assistants. Day and hour to be arranged. *Baker 277.*

Laboratory practice in the application of special methods such as indirect analysis, conductometric and potentiometric titrations, etc., to quantitative analysis and the analysis of special materials. Electrochemical methods for the determination of silver, lead, copper, tin, nickel, cobalt, zinc, iron, etc.; the analysis of alloys and ores. The study of the important methods and special forms of apparatus used in scientific gas analysis.

Within certain limits the work may be selected to suit the requirements of the individual student.

275. Quantitative Microanalysis. First term. Credit three or more hours. Prerequisite, Chemistry 230 and special permission. Fee, \$20. Mr. NICHOLS. W F 9-5. *Baker 358.*

Laboratory practice in typical methods of both organic and inorganic quantitative microanalysis.

280. Emission Spectroscopy in Chemical Analysis. First term. Credit variable. Prerequisite, special permission. Fee, \$15. Mr. PAPISH and Mr. BAUER. Laboratory hours to be arranged. *Baker 396.* Conference, to be arranged.

The construction and use of spectroscopic equipment; spectrum excitation; qualitative and quantitative spectrochemical analysis. Given in alternate years.

295. Research for Seniors. Throughout the year. Credit two or more hours a term. Deposit variable. Messrs. NICHOLS, PAPISH, LONG, BAUER, and WATTERS.

ORGANIC CHEMISTRY

305. Introductory Organic Chemistry. Throughout the year. Credit six hours on completion of the course. Prerequisite, qualitative analysis. Open to those who are taking Course 220. Mr. JOHNSON and Mr. MILLER. M W F 9. *Baker* 200.

Lectures and written reviews. The more important compounds of carbon, their occurrence, methods of preparation, relations, and uses.

Students who have completed Chemistry 375 may register for Chemistry 305 in the second term and receive two hours credit.

310 Introductory Organic Chemistry. Throughout the year. Credit three hours each term. Prerequisite or parallel course, Chemistry 305. Deposit, \$40. Mr. JOHNSON, Mr. MILLER, and assistants. Laboratory sections, T Th 10-12:30, Th 1:40-4; F 1:40-4, S 8-1. *Baker* 250.

Laboratory practice and oral reviews. The student prepares a large number of typical compounds of carbon and familiarizes himself with their properties, reactions, and relations.

315. Advanced Organic Chemistry. Throughout the year. Credit two hours a term. Prerequisite, Chemistry 305, 310, and 340, or the consent of the instructor. Mr. JOHNSON, Mr. BRUCE, and Mr. MILLER. T Th 9. *Baker* 177.

Lectures. First term, survey of the more important classes of organic compounds and their reactions. Second term, discussion of general topics (tautomerism, molecular rearrangements, stereochemistry). Students may register for either term separately.

320. Advanced Organic Chemistry. Either term. Credit two to six hours a term. Prerequisite, Chemistry 305 and 310. Deposit variable. Mr. BRUCE, Mr. MILLER, and assistants. Day and hour to be arranged. Conference, F 12. *Baker* 206, *Baker* 208.

Laboratory practice. An advanced course in the preparation of organic compounds. The original literature is consulted, and the student is required to repeat some extended and important piece of work, and to compare his results with those published.

325. Special Topics in Organic Chemistry. Second term. Credit two hours. Prerequisite, Chemistry 315 or 340. Primarily for graduate students; open to undergraduates only by special permission. M W 11. *Baker* 207. Mr. JOHNSON and Mr. MILLER. Given in alternate years.

Lectures. A presentation and discussion of special fields and current theories of organic chemistry. The topics will be: Organic Chemistry of Nitrogen and Sulfur, and Heterocyclic Compounds.

330. Chemistry of High-polymers. First term. Credit two hours. Prerequisite, Chemistry 315 or 340, and 405 or 406. Mr. MILLER. M W 11. *Baker* 207. Given in alternate years.

The mechanism and kinetics of polymerization processes and the chemical structure and reactions of high-polymers will be discussed, with examples chosen from the more significant natural and synthetic high molecular weight materials.

[335. Physical Aspects of Organic Chemistry. First term. Credit two hours. Prerequisite, Chemistry 315 or 340; open to undergraduates only by special permission. Mr. JOHNSON and Mr. MILLER. *Baker* 207. Given in alternate years. Not given in 1942-43.]

340. Identification of Organic Compounds. Second term. Credit three hours. Prerequisite, Chemistry 305 and 310 at grades of 75. Mr. MILLER and assistants. Lectures and conferences, T Th 10. *Baker* 206. Two laboratory periods, M T W or Th 1:40-4. *Baker* 350.

The classification reactions of organic compounds and the preparation of solid derivatives are applied to the identification of unknown organic substances.

[345. Biochemical Aspects of Organic Chemistry. Second term. Credit two hours. Prerequisite, Chemistry 315 or 340; open to undergraduates only by special permission. Mr. BRUCE. T 4:15. *Baker* 204. Given in alternate years, not in 1942-43.]

A discussion of the organic chemistry of natural products, including plant and animal pigments, Vitamins, Hormones, etc.

375. Elementary Organic Chemistry. Either term. Lectures and laboratory, six hours credit. For students in the pre-medical and biological curricula. Registration for the first term is limited. Prerequisite, general chemistry; qualitative analysis is desirable but not required. Deposit, \$25. Mr. BRUCE, Mr. MILLER, and assistants.

Lectures: First term, M W F S 9; second term, M W F S 11. *Baker* 207.

Laboratory Sections: First term, M W 10-12:30; M W 1:40-4; T Th 1:40-4. Second term, M W 1:40-4; T Th 8-10:30. *Baker* 250.

The student should determine the entrance requirement in Organic Chemistry for the particular medical school he wishes to enter. If more than six hours credit is required, he should register in Chemistry 305 and 310. Students may obtain 9 hours credit by taking Chemistry 305 throughout the year (6 hours) and Chemistry 310 (3 hours) during the first term.

By special permission students may register for five hours credit, with only one laboratory period a week: T or Th 8-10:30. Deposit, \$15.

395. Research for Seniors. Throughout the year. Credit two or more hours a term. Deposit variable. Mr. JOHNSON, Mr. BRUCE, and Mr. MILLER.

Students are advised to complete Chemistry 340 before registering in this course.

PHYSICAL CHEMISTRY

405. Introductory Physical Chemistry. Throughout the year. Credit three hours a term. Prerequisite, Chemistry 305; Mathematics 7a and 7b and Physics 11 and 12 (or their substantial equivalent). Required of candidates for the degree of B.Chem.Eng. Mr. BRIGGS and assistants. Lectures, M W F 9. *Baker 7.*

A systematic presentation of the principles of physical chemistry. The topics include: the properties of gases, liquids, and solids; physical and chemical equilibrium in homogeneous and heterogeneous systems; the Mass Law, theorem of Le Chatelier, and the Phase Rule; thermochemistry and elementary thermodynamics; the theory of solutions; ionic equilibria; chemical kinetics and catalysis; problems in physical chemistry.

406. Physical Chemistry. Throughout the year. Credit three hours a term. Prerequisite, Chemistry 305, which may be taken simultaneously; Mathematics 6a, 6b, and 6c or 5a and 5b; Physics 3 and 4 (or 6), or 11 and 12. Required of candidates for the degree of A.B. majoring in chemistry and open to other qualified students by permission. Mr. HOARD. Lectures and recitations, M W F 10. *Baker 22.*

A study of the more fundamental principles of physical chemistry from the standpoint of the laws of thermodynamics, and of the kinetic theory. A unified treatment of the properties of matter, thermochemistry, the properties of solutions, and of equilibrium in homogeneous and heterogeneous systems. Chemical kinetics and catalysis are included.

410. Introductory Physical Chemistry. Throughout the year. Laboratory and informal recitations. Credit three hours a term. Prerequisite or parallel course, Chemistry 405 or 406. Deposit, \$20. Mr. BRIGGS, Mr. HOARD, and assistants. Laboratory sections: M T 1:40-4; Th F 1:40-4; and S 8-1. *Baker 1.* Recitations to be arranged.

Qualitative and quantitative experiments illustrating the principles of physical chemistry and practice in performing typical physico-chemical measurements. Recitations on the general principles of physical chemistry, based upon the lectures.

420. Advanced Physical Chemistry. First term. Credit three hours. Prerequisite, Chemistry 405. Required of candidates for the degree of Bachelor of Chemistry. Mr. HOARD. Lectures and recitations, M W F 12. *Baker 7.*

Exposition of the principles of physical chemistry from the mathematical standpoint, with emphasis on the solution of simple problems.

425. Application of the Phase Rule. First term. Credit two hours. Prerequisite, Chemistry 405 or an elementary knowledge of the phase rule as applied to systems of one and two components. Mr. BRIGGS. Lectures, T Th 11. *Baker 7.*

The study and interpretation of typical phase diagrams, especially in systems of two and three components, followed by a brief treatment of systems containing four or more components. Special attention will be given to metal alloy diagrams, to equilibria in saturated salt solutions, and to the problem of indirect analysis. Given in alternate years.

[430. Colloid Chemistry. Throughout the year. Credit two hours a term. Prerequisite, Chemistry 405 or 406. Mr. BRIGGS. Lectures, T Th 10. *Baker 7.*

First term: the properties of surfaces, including the adsorption of gases by solids, adsorption from solutions, liquid films, and contact catalysis. Second term: general properties of colloidal solutions and suspensions. Given in alternate years. Not given in 1942-43.]

435. Chemistry of Solids. First term. Credit three hours. Prerequisite or parallel courses. Chemistry 405 or 406, or special permission. Hours to be arranged. Mr. HOARD and Mr. MASON.

A general discussion of the formation and growth of metallic and chemical crystals, their physical and chemical behavior, and the relationships between lattice structure and chemical constitution. Given in alternate years.

[440. **Molecular Spectra.** First term. Credit three hours. Open to qualified students by permission. Mr. BAUER. Hours to be arranged. Given in alternate years, not in 1942-43.]

Brief review of atomic spectra. Description of the various types of molecular spectra; the rotation and vibration of diatomic molecules, electronic states and electronic transitions. A résumé of continuous and diffuse molecular spectra with reference to the subject matter considered in photochemistry. Normal coordinate treatment of the vibrations of polyatomic molecules and the analysis of their Raman and infrared absorption spectra. Discussion of the relation between molecular structure and molecular constants.]

445. **Introductory Electrochemistry.** Second term. Credit three hours. Lectures and laboratory. Prerequisite, Chemistry 405 or 406. Deposit, \$15. Mr. BRIGGS and assistant. Lectures, M W 12. *Baker* 7. Laboratory: hours to be arranged following first lecture. *Baker* 1A.

Theory of electrolysis and of the voltaic cell, including theory and practice of electromotive force measurements, transference, ion activities, and oxidation-reduction.

450. **Applied Electrochemistry.** First term. Credit three hours. Prerequisite, Chemistry 405 or 406. Mr. BRIGGS. Lectures, M W F 11. *Baker* 7.

Elementary theory of electrolysis and electromotive force. Electrolytic refining and extraction of metals; electroplating; electrolytic preparation of organic and inorganic compounds; electrothermal electrolysis; storage cells; brief survey of electrothermics. By electing Course 465 (one or more hours), the student may obtain laboratory practice in many of the subjects which are presented in the lectures. Given in alternate years and provided at least six students register for the course.

[455. **Kinetics of Chemical Reactions.** Second term. Credit two hours. Prerequisite, Chemistry 405. Mr. LONG. Hours to be arranged. Given in alternate years, not given in 1942-43.]

A general discussion of rates of reactions including: types of reactions, methods of measurement, theories of reaction rates, application to problems.]

460. **Chemical Physics.** Second term. Credit three hours. M W F 10. Open to seniors and graduate students majoring in chemistry or physics. Mr. DEBYE.

An elementary presentation of the principles involved in describing the structure and behavior of matter; atomic structure and the periodic table; inter-atomic forces; structure of solids; electrons in metals; temperature equilibrium and statistics.

465. **Advanced Laboratory Practice in Physical Chemistry.** Either term. Credit variable, but not to exceed six hours a term. Prerequisite, determined in each case by the Professor in charge. Deposit variable. Messrs. BRIGGS, KIRKWOOD, and HOARD, and assistants. Hour and place to be arranged.

470. **Thermodynamics.** Throughout the year. Credit three hours a term. Prerequisite, Chemistry 405 and 420, or special permission. Mr. KIRKWOOD. M W F 9. *Baker* 18.

Development of the general equations of thermodynamics from the first and second laws. Exposition of the concepts of entropy and free energy. Applications to the study of physico-chemical equilibria in gases, liquids, solids, and liquid solutions. Problems.

[475. **Theory of Solutions.** First term. Credit three hours. Prerequisite, Chemistry 470. Mr. KIRKWOOD. M W F 12.]

Exposition of modern theories of electrolyte and non-electrolyte solutions. Presentation of the Debye-Hückel theory and the calculation of the thermodynamic functions of electrolyte solutions from inter-ionic forces. The Bjerrum theory of ion association. Correlation of the properties of non-electrolyte solutions with molecular distribution and intermolecular forces. Discussion of transport phenomena in solution including electrolytic conductance, diffusion, and viscous flow. Given in alternate years, not in 1942-43.]

[480. **Statistical Mechanics.** Second term. Credit three hours. Prerequisite, first term Chemistry 470. Mr. KIRKWOOD. M W F 12.]

Exposition of the equilibrium theory of statistical mechanics from the standpoint of the Gibbs canonical ensemble. Mechanical interpretation of the principles of thermodynamics, with application to simple thermodynamic systems. Given in alternate years. Not given in 1942-43.]

490. **Introductory Quantum Mechanics with Chemical Applications.** Second term. Credit three hours. Open to qualified students by permission. Mr. KIRKWOOD. Hours to be arranged.

Elementary presentation of the principles of quantum mechanics. The basic ideas underlying the quantum mechanical theory of the chemical bond. Given in alternate years.

495. **Research for Seniors.** Throughout the year. Credit two or more hours a term. Deposit variable. Messrs. BRIGGS, KIRKWOOD, and HOARD.

SPECIAL TOPICS

910. **Special Topics in Chemistry.** First term. Credit one hour. Mr. RHODES and Mr. MASON. T 12. Room to be arranged.

The use of chemical literature; methods of research; administration of chemical laboratories; patent law; and other special topics.

[1000. **Non-Resident Lectures on the George Fisher Baker Foundation.** Credit two hours. T Th 12. *Baker 177.* Open to seniors in the course in Chemistry, and to juniors by special permission. Not given in 1942-43.]

CHEMICAL ENGINEERING AND INDUSTRIAL CHEMISTRY

For courses in Chemical Engineering, Industrial Chemistry, and Chemical Microscopy and Metallography, see the Announcement of the College of Engineering.

THE CLASSICS

Those whose major study is in the Classics must complete twenty hours of non-starred courses in the Department, and fifteen hours, selected after conference with the adviser, in related subjects. Related subjects for this purpose are Ancient History, the Comparative Study of Literature, modern foreign languages, particularly French and German, and Ancient Philosophy.

ARCHAEOLOGY, ANCIENT ART

1a. **History of Painting and Sculpture.** Throughout the year. Credit three hours a term. First term: Ancient and Mediaeval; Mr. WAAGÉ. Second term: Renaissance and Modern; Mr. FINLAYSON. For registration, see under Fine Arts 1. Only the first term's work will count for credit in Classics.

History of Greek Sculpture. (See Fine Arts 2.) Mr. WAAGÉ.

Art of the Roman Empire. (See Fine Arts 3.) Mr. WAAGÉ.

[5. **Ancient Painting and Mosaic.** Second term. Credit three hours. Mr. WAAGÉ. M W F 11. *Goldwin Smith Museum of Casts.* Not given in 1942-43.]

6. **History of Coins.** First term. Credit two or three hours. Mr. WAAGÉ. Hours to be arranged. *Goldwin Smith 35.* Open to students whose major work is in the Classics or History, and to other students by special permission.

The coins will be treated as material for the study of the history of the Mediterranean states from the sixth century B. C. to the Byzantine Empire, with reference to the politics, economics, and art of the period. The students will work with coins from the University collection.

7. **Problems in Archaeology.** Second term. Credit two or three hours. Mr. WAAGÉ. Hours to be arranged. *Goldwin Smith 35.* Open to students whose major work is in the Classics, and to other students by special permission.

GREEK

*1a. **Greek for Beginners.** Introduction to Homer's Iliad. Repeated in second term. Credit three hours. Mr. CAPLAN. M W F 12. *Goldwin Smith 124.*

*1b. **Homer's Iliad.** Continuation of Greek 1a. Repeated in second term. Credit three hours. Prerequisite, Greek 1a. Mr. SOLMSEN. M W F 12. *Goldwin Smith 120.*

*2a. **Attic Greek.** Xenophon: Anabasis; Plato: Selected Dialogues. Repeated in second term. Credit three hours. Prerequisite, Greek 1b. Mr. JONES. M W F 11. *Goldwin Smith 124.*

*2b. **Euripides: Iphigenia in Tauris, and Alcestis; New Testament: Selections.** Repeated in second term. Credit three hours. Prerequisite, Greek 2a. Mr. JONES. T Th S 10. *Goldwin Smith 120.*

5. **Greek Composition.** Throughout the year. Credit one hour. Prerequisite, Greek 1b or its equivalent. Mr. JONES. T 2. *Goldwin Smith 124.*

[*7. **Greek Myths.** Illustrated lectures. First term. Credit two hours. Mr. JONES. Open to sophomores and upperclassmen who have had a year of Greek, Latin, or Ancient History. Not given in 1942-43.]

[*8. **Lectures on Ancient Greece and Greek Life.** Second term. Credit two hours. Open to sophomores and upperclassmen who have had a year of Greek, Latin, or Ancient History. Not given in 1942-43.]

17. **Aristophanes: Clouds; Sophocles: Oedipus Rex, Antigone.** Throughout the year. Credit three hours a term. Prerequisite, Greek 2a. Mr. JONES. T Th S 11. *Goldwin Smith* 120.

20. **Lyric Poetry; Aeschylus: Prometheus Vincetus; Theocritus; Demosthenes: Philippics.** Throughout the year. Credit three hours a term. Prerequisite, Greek 17. Mr. JONES. T Th S 9. *Goldwin Smith* 120.

22. **Plato: the Republic; Pindar: Selected Odes; Thucydides.** Throughout the year. Credit three hours a term. Prerequisite, Greek 20. For graduates and qualified undergraduates. First term, Mr. HUTTON; second term, Mr. SOLMSEN. T Th S 11. *Goldwin Smith* 128.

25. **Advanced Greek Composition.** Throughout the year. Credit one hour a term. Prerequisite, Greek 5. Mr. JONES. Th 2. *Goldwin Smith* 124.

30. **Lectures: The History of Greek Literature.** (Based on translations.) Open to sophomores and upperclassmen. Mr. SOLMSEN. T Th 10. *Goldwin Smith* 124.

52. **Greek Dialects.** For graduate students and qualified upperclassmen. Second term. Credit two hours. Mr. WARD. T Th 9. *Goldwin Smith* 124.

LATIN

Prospective teachers of foreign languages in the secondary schools whose interest is primarily in Latin will ordinarily choose Latin as their major subject. For these students, the requirements will be courses 16, 17, 21, 26, with prerequisites, and in addition such courses in Latin, and in related subjects in Classics and in other departments, as may be determined after conference with the adviser.

For those who desire to teach Latin in addition to another foreign language which has been chosen as a major subject, the minimum requirements in Latin will be courses 16, 17, 21, 26, with prerequisites.

The most frequent combination of foreign languages for secondary teachers at the present time is Latin and French, and for this combination the departments concerned have arranged a special schedule of required and recommended courses which will satisfy the requirement of each language as a major subject.

[*A. **Freshman Course:** For Students Offering Two Units of Entrance Latin. Throughout the year. Credit three hours a term. Cicero: Selected Orations; Virgil: Aeneid. Not given in 1942-43.]

*1a. **Freshman Course.** For Students Offering Three Units of Entrance Latin. Throughout the year. Credit three hours a term. Section 1, M W F 10. Mr. SOLMSEN. *Goldwin Smith* 120. Section 2, T Th S 10. Mr. WARD. *Goldwin Smith* 128. Ovid; Virgil; Horace: Odes and Epodes.

*1. **Freshman Course:** For Students Offering Four Units of Entrance Latin. Throughout the year. Credit three hours a term. Section 1, M W F 10. Mr. HUTTON. *Goldwin Smith* 128. Section 2, M W F 11. Mr. CAPLAN. *Goldwin Smith* 120. Cicero: De Senectute; Martial: Epigrams; Horace: Odes and Epodes.

*2. **Sight Translation.** Throughout the year. Credit one hour a term. Mr. WARD. Section 1, T 11. *Goldwin Smith* 124. Section 2, W 9. *Goldwin Smith* 120. Mr. WARD.

*8. **Terence; Catullus; Horace: Satires and Epistles; Virgil: Georgics; Livy.** Throughout the year. Credit three hours a term. Prerequisite, Latin 1a or 1. M W F 10. Mr. WARD. *Goldwin Smith* 124.

11. **Ovid.** Open to those who have taken or are taking course 8 or course 16. Mr. SOLMSEN. First term. Two hours credit. T Th 12. *Goldwin Smith* 128.

[12. **Early Christian Writers.** Open to those who have taken or are taking course 8 or course 16. Second term: Two hours credit. Not given in 1942-43.]

16. **The Greater Republican Writers.** Throughout the year. Credit three hours a term. Prerequisite, Latin 8, 11, or 12. Plautus; Cicero; Lucretius. Mr. HUTTON. M W F 9. *Goldwin Smith* 124.

[17. **Literature and History of the Early Empire.** Throughout the year. Credit three hours a term. Prerequisites, Latin 8, 11, or 12. Tacitus: Annals; Juvenal; Pliny's Letters; Suetonius; Seneca's Letters. Not given in 1942-43.]

21. **Latin Writing, Elementary Course.** Throughout the year. Credit one hour a term. Prerequisite, Latin 1 or 1a. Mr. WARD. W 2. *Goldwin Smith 124.*

26. **Course for Teachers.** Second term. Credit two hours. Mr. CAPLAN. T Th 12. *Goldwin Smith 124.*

[27. **Topography and Architectural Remains of Rome.** First term. Credit two hours. Not given in 1942-43.]

[33. **Classical and Mediaeval Rhetoric.** Not given in 1942-43.]

45. **Latin Writing, Advanced Course.** Throughout the year. Credit one hour a term. First term, Mr. SOLMSEN. Second term, Mr. WARD. M 2. *Goldwin Smith 124.* For graduates, and for undergraduates who have taken Latin 21.

[47. **History of the Latin Language.** First term. Credit two hours. Primarily for graduates. Not given in 1942-43.]

[48. **Vulgar Latin: Petronius: Cena Trimalchionis; Vulgar Latin Inscriptions.** Primarily for juniors and seniors. Not given in 1942-43.]

[49. **Comparative Grammar of Greek and Latin: Indo-European Linguistics.** Throughout the year. Credit two hours a term. For graduate students and qualified upperclassmen. Not given in 1942-43.]

[50. **Latin Epigraphy.** Primarily for juniors and seniors. Not given in 1942-43.]

51. **Italic Dialects: Oscan and Umbrian.** For graduate students and qualified upperclassmen. First term. Credit two hours. T Th 9. Mr. WARD. *Goldwin Smith 124.*

For Graduate courses, see the *Announcement of the Graduate School.*

COMPARATIVE STUDY OF LITERATURE

For major work in the Comparative Study of Literature the following courses must be completed; (1) in the Comparative Study of Literature, a minimum of twelve hours in courses selected from 27, 28, 103b, 104, 105, and 106, to which may be added nine other hours in unstarred courses in English to be selected with the consent of an adviser; (2) in related subjects, a minimum of twenty-four hours selected from courses in Greek, Latin, Ancient and Mediaeval History, Ancient and Mediaeval Philosophy, and, when the minimum of twelve hours mentioned above is adhered to, English (but not starred courses in English). With the authorization of an adviser in English, these requirements may be interpreted and adjusted in such fashion as to fulfil the requirements for major work in English.

27. **Modern Writers on Art: Tolstoy, Nietzsche, and Ruskin.** Throughout the year. Credit three hours a term. Open to sophomores and upperclassmen with the permission of the instructor. Mr. HUTTON. M W F 9. *Goldwin Smith 245.* A study of artistic principles and practice, with special attention to the art of prose.

28. **English Translations of Greek and Latin Classics.** Throughout the year. Credit three hours a term. Open to sophomores and upperclassmen. Mr. COOPER. T Th 10 and conferences. *Goldwin Smith 127.*

Rapid reading in the best translations, with emphasis upon Greek masterpieces; for example, the Iliad and the Odyssey, the tragedies of Sophocles, and several dialogues of Plato. Translations from the Latin will be chosen for the bearing of the original works upon modern literature. Students wishing to take the course must consult the instructor in advance.

[103a. **Old English.** First term. Credit three hours. Open to sophomores and upperclassmen, and to graduate students by special permission. Mr. COOPER. Not given in 1942-43; to be given in 1943-44.]

103b. **Middle English.** Second term. Credit three hours a term. Open to sophomores and upperclassmen, and to graduate students by special permission. Mr. COOPER. M W F 10. *Goldwin Smith 127.*

A study of the foundations of the English language and literature, with emphasis upon the chief writers of the fourteenth century, especially Chaucer, and upon their relations to Blake, Wordsworth, Kipling, and others. Some attention is paid to literary species, and to earlier and later translations of the Bible.

104. **Principles of Literary Criticism.** Throughout the year. Credit three hours a term. Primarily for graduate students; open to upperclassmen by permission. Mr. COOPER. W 11-12:50. *Goldwin Smith 127.*

A study of the chief theories of poetry, and chief kinds of literature, with illustrations drawn from writers both ancient and modern.

This and course 106 are mainly designed for prospective college and university teachers.

105. General Reading. First term. Credit three hours. Primarily for upperclassmen; open to sophomores by special permission. All who wish to take the course should consult the instructor in advance, since the class must be limited to seventy students. Mr. COOPER. M W F 10. *Goldwin Smith* 156.

For those who wish to form, now and later, a library of the best books. Hints for a journal, to be kept by the student, of his current reading, and plans for reading; a thread to be supplied by some main author, in English or in available English translations, conjointly with a few main English poets. Reading aloud by the instructor and invited readers.

[106. Dante in English. Throughout the year. Credit three hours a term. Primarily for graduate students; open to upperclassmen by permission. Mr. COOPER. Not given in 1942-43; to be given in 1943-44.]

ECONOMICS

For a major in Economics the following courses must be completed: (1) in Economics, course 1, or 2a and 2b, or the equivalent; twenty-four hours of advanced courses; (2) in related subjects, fifteen hours in the following Departments: (a) History (in addition to the six hours in Prescribed Subjects); (b) Government (except courses 1, 2, 3); (c) Sociology 3, 31, 40, 50, 60, 61; (d) Philosophy 3, 4, 5, 10; (e) Mathematics (except course 1); (f) Geology 206, 500.

Students who intend to register in Arts and Sciences and in the Law School will be required to complete twelve hours of advanced courses in Economics and nine hours of related courses.

Social Science A-B-C-D will satisfy the prerequisite requirement of Economics 1 or its equivalent.

INTRODUCTORY COURSES

***1. Modern Economic Society.** Repeated in second term. Credit five hours. Not open to freshmen. Mr. ENGLISH. Daily except S, 8 or 11 as assigned.

A survey of the existing economic order, its more salient and basic characteristics, and its operation.

Students should register, if possible, on the first day of registration. Assignment to sections will be made on registration days at *Goldwin Smith* 260.

***2a. Modern Economic Society.** First term. Credit three hours. Not open to freshmen. Mr. ENGLISH. M W F 8, 9, 10, 11; T Th S 8, 9, 11.

This course and course 2b cover the same subject matter as course 1.

Students should register, if possible, on the first day of registration. Assignment to sections will be made on registration days in *Goldwin Smith* 260.

***2b. Modern Economic Society.** Second term. Credit three hours. Prerequisite, course 2a. Mr. ENGLISH. M W F 8, 9, 10, 11; T Th S 8, 9, 11.

***3. Introduction to Economics.** For students in Engineering and Chemistry. Repeated in second term. Credit three hours. Mr. ENGLISH. Hours to be announced.

An introduction to the more essential economic features of contemporary American society.

FINANCE

11. Money, Currency, and Banking. Repeated in the second term. Credit three hours. Prerequisite, Economics 1 or its equivalent. Mr. REED. M W F 9. *Goldwin Smith* C.

An introductory study of the history and theory of money, currency, and bank credit. Enrollment limited.

12. Commercial Banking. Second term. Credit three hours. Prerequisite, Economics 11. Mr. REED. M W F 11. *Goldwin Smith* 256.

Problems of bank administration.

[13. Financial History of the United States. Second term. Credit three hours. Prerequisite, Economics 11. Mr. O'LEARY. Not given in 1942-43.]

15. Trade Fluctuations. First term. Credit three hours. Prerequisite, Economics 11. Mr. REED. M W F 11. *Goldwin Smith* 256.

A study of the causes and effects of trade recessions and revivals, with an introduction to the methods of general forecasting.

ACCOUNTING

21a. Accounting. Repeated in second term. Credit three hours. Prerequisite, Economics 1 or its equivalent. May, with permission of instructor, be taken by students registered for course 2b. Mr. ENGLISH. T Th 8. *Goldwin Smith C.* One practice period. T or W 2-4. *Goldwin Smith 329.*

Theory of debit and credit; the journal and ledger; the development of books of original entry; preparation of income statements and balance sheets.

21b. Accounting. Repeated in second term. Credit three hours. Prerequisite, Economics 21a. Mr. ENGLISH. T Th 9. *Goldwin Smith 256.* One practice period. Th 2-4. *Goldwin Smith 329.*

Capital stock accounts; bonds and their valuation; amortization, reserves and reserve funds, analysis of income statements and balance sheets.

[26. Accounting Theory and Problems. Throughout the year. Credit two hours a term. Prerequisite, Economics 21b, or its equivalent. Mr. ENGLISH. Not given in 1942-43.]

ORGANIZATION AND CONTROL OF INDUSTRY

31. Corporation Finance. Repeated in second term. Credit three hours. Prerequisite, Economics 21a. Mr. ENGLISH. M W F 9. *Goldwin Smith A.*

A study of the financial practices of business corporations in the United States; types of corporate securities; sources of capital funds; determination and administration of corporate incomes; financial difficulties and corporate reorganizations; the relation of corporate practices to the functioning of the American economic system; and the regulatory activities of the Securities and Exchange Commission.

32a. Public Control of Business. First term. Credit three hours. Prerequisite, Economics 1 or its equivalent. Mr. ADAMS. T Th S 10. *Goldwin Smith 264.*

An examination of the economic and legal foundations of public control, with special reference to the problem of monopoly and to the anti-trust law policy.

33. Public Control: Business in Wartime. Second term. Credit three hours. Prerequisite, course 32a or the consent of the instructor. Mr. ADAMS. T Th S 10. *Goldwin Smith 264.*

A study of the special problems and techniques of control which modern war makes necessary.

[34. Economics of Transportation. First term. Credit three hours. Open to upper-classmen who have credit for Economics 21a. Mr. O'LEARY. Not given in 1942-43.]

PUBLIC FINANCE

Taxation. (Agricultural Economics 138). Second term. Credit three hours. Open to juniors and seniors who have credit for Economics 1 or its equivalent. Mr. KENDRICK. M W F 11. *Warren Hall 25.*

A study of the principles and practices of public finance, with emphasis on taxation. Among the topics examined are: the growth of public expenditures; the changing pattern of federal, state, and local taxation; general property, inheritance, business, and personal income taxation; the incidence of taxation; and the problem of war finance.

Fee for materials furnished, \$2.

52. Federal Taxation. First term. Credit three hours. Prerequisite, Agricultural Economics 138 or the equivalent. Mr. KENDRICK. M W F 11. *Goldwin Smith 264.*

An examination of the principles and practices followed in obtaining federal revenue, with emphasis on the problems of individual and corporation income taxation.

LABOR AND INDUSTRIAL RELATIONS

41. Labor Conditions and Problems. First term. Credit three hours. Prerequisite, Economics 1 or its equivalent. Mr. MONTGOMERY. M W F 10. *Goldwin Smith 256.*

An introduction to the field of Labor Economics and survey of the more basic labor problems growing out of modern economic arrangements.

42. Trade Unionism and Collective Bargaining. Second term. Credit three hours. Prerequisite, Economics 41 or the consent of the instructor. Mr. MONTGOMERY. M W F 10. *Goldwin Smith 256.*

A study of the origins, philosophic basis, aims, and policies of trade unions, of the economic implications of trade unionism in modern economic life, and of collective bargaining in selected industries.

44. **Public Policy and Industrial Relations.** First term. Credit two hours. Prerequisite, Economics 41 or consent of the instructor. Mr. MONTGOMERY. T Th 10. *Goldwin Smith* 236.

An analysis of some of the more important problems of employer-worker relations and of the impact of government policy toward labor and industry upon these relations

[45. **The Economics of Dissent.** First term. Credit two hours. Open to upperclassmen with the consent of the instructor. Mr. MONTGOMERY. Not given in 1942-43.]

46. **Legal and Constitutional Aspects of Labor Problems and Social Insurance.** Second term. Credit two hours. Consult the instructor before registering. Mr. MONTGOMERY. T 2-4. *Goldwin Smith* 264.

A study of the legal aspects of trade union objectives and methods and types of social insurance. Among the topics treated: legal theories underlying labor law; statutory enactments affecting trade unions; injunctions, damage suits, criminal prosecutions, restrictions upon employers; conciliation, arbitration, mediation, unemployment insurance, health insurance, workmen's compensation, old age pensions, the legal minimum wage.

47. **Labor's Risks and Social Insurance.** Second term. Credit two hours. Consult the instructor before registering. Mr. MONTGOMERY. W 2-4. *Goldwin Smith* 264.

A study of risks of labor in contemporary economic life and of the theory and practical operation of the various types of social insurance.

ECONOMIC HISTORY

61a. **Economic History.** First term. Credit three hours. Prerequisite, Economics 1 or its equivalent, or the consent of the instructor. Mr. HUTCHINS. T Th S 9. *Goldwin Smith* 242.

A study of the development of the agricultural, industrial, commercial, and financial organization of modern capitalism in Europe and the United States during its early stages—1750-1860.

61b. **Economic History.** Second term. Credit three hours. Prerequisite, Economics 1 or its equivalent, or the consent of the instructor. Mr. HUTCHINS. T Th S 9. *Goldwin Smith* 242.

A study of the development of modern capitalism in Europe, the United States, and the Orient during its advanced stages—1860-1942. Problems in business organization and public policy in the various nations will be examined against the changing background of the economic structure.

STATISTICS

Introduction to Statistics. (Sociology and Anthropology 70). Second term. Credit three hours. Open to sophomores, juniors, and seniors; enrollment limited to fifty. Mr. GUTTMAN.

Methods of Statistical Analysis. (Sociology and Anthropology 71). Throughout the year. Credit three or four hours a term. Mr. GUTTMAN.

INTERNATIONAL TRADE AND FINANCE

[71. **International Trade and Commercial Policy.** First term. Credit three hours. Prerequisite, Economics 1 or its equivalent. Mr. SOUTHARD. M W F 10. *Goldwin Smith* 242. Not given in 1942-43.]

A study of the theory and practice of international trade, the mechanisms and institutions of adjustment, and the objectives and techniques of commercial policy, with special reference to the United States.

[72. **International Finance.** Second term. Credit three hours. Prerequisite, Economics 71 or 11. Mr. SOUTHARD. Not given in 1942-43.]

[74. **International Economic Organization.** Second term. Credit three hours. Prerequisite, Economics 71 or the consent of the instructor. Mr. SOUTHARD. Not given in 1942-43.]

ECONOMIC THEORY

81. **Economics of Enterprise.** First term. Credit three hours. Prerequisite, Economics 1 or its equivalent. Mr. KENDRICK. M W F 10. *Goldwin Smith* 264.

A course in economic theory with emphasis on the price aspect of the economic

order. Among the topics treated are: the nature and meaning of the economic process; the relation of that process to social welfare; the significance of the cost of production; distribution; the rent of land; interest, and the problem of combining the factors of production.

82. Economic Analysis. Second term. Credit three hours. Prerequisite, Economics 81 or its equivalent. Mr. ADAMS. T Th S 11. *Goldwin Smith* 264.

A study of fundamental economic concepts and of methods of expressing the economic relations of phenomena.

[83. History of Modern Economic Thought. Throughout the year. Credit three hours a term. Open to juniors, seniors, and graduate students. Admission at midyear with the consent of the instructor. Mr. HOMAN. Not given in 1942-43.]

Interdepartmental Seminars, see page 83. The seminars offered in 1942-43 will be accepted as related subjects.

PRIMARILY FOR GRADUATES

The following seminar courses usually meet for two hours a week throughout the year.

- 110. *Money and Credit.* Mr. REED.
- 130. *Control of Industry.* Mr. O'LEARY.
- 140. *Labor Economics.* Mr. MONTGOMERY.
- 150. *Public Finance.* Mr. KENDRICK.
- 160. *Economic History.* Mr. HUTCHINS.
- 170. *International Economics.* Mr. SOUTHARD.
- 180. *Economic Theory.* Mr. HOMAN.

ENGLISH

For major work in English the student is required to complete (1) six hours of English 2 (or its equivalent); (2) thirty hours of advanced work, six hours of which will normally be chosen from courses 20, 21, 22, 23, 24, 26; and (3) eighteen hours in related subjects. The choice of these courses is subject to the following restrictions:

a. A student must take a minimum of three hours' work in each of Groups I, II, III, and IV; and so plan his program that he will have completed a total of nine hours' work in one period and nine hours' work in one form or type of literature.

The periods and forms are set out below:

Periods

- 1. Before 1500 (Courses 31, 56, 60, 81)
- 2. 1500-1660 (Courses 32, 33a, 45, 61, 63)
- 3. 1660-1800 (Courses 33b, 34a, 34b, 43, 44 first term, 55 second term, 66)
- 4. 1800-1880 (Courses 35, 36, 42, 44 second term, 70, 71, 72, 76)
- 5. 1880-the present (Courses 40a, 40b, 48, 53, 54, 79)
- 6. American Literature (Courses 39, 40b, 41, 54, 58, 78a, 78b)

Forms

- 1. Poetry (Courses 15, 22, 53, 54 and any courses in Group IV devoted to the study of a poet)
- 2. Drama (Courses 23, 45, 48, 61)
- 3. Prose fiction (Courses 26, 40a, 40b, 41, 42, 43, 44)
- 4. Prose, critical and reflective (36 first term, 55, 66, 78a)
- b. The eighteen hours in related courses must be chosen from the Classics, the Modern Languages (after the College requirements are satisfied), the Comparative Study of Literature, Public Speaking, Philosophy, History, Music, and the Fine Arts. In general, the student will be expected to complete twelve of these hours in one department.

The Department of English strongly recommends that students who intend to choose English as their major subject take English History in their first or second year.

A student desiring to become a candidate for Honors in English should consult his adviser not later than May of his junior year, and preferably earlier. At the close of his junior year he will be given an oral examination by his adviser on the scope of his reading. If this examination is passed, he should then make arrangements with some member of the Department for a program of informal study in his senior year, leading to the writing of an essay, which he will submit to the Department not later than May 1. Early in May of his senior year

the student will be given a comprehensive written examination. Sample copies of this examination may be seen at any time.

Students preparing for the teaching of English in secondary schools should consult Professor Hulse of the Department of Education in their freshman year, or as soon afterward as they reach a decision. They should include in their programs at least fifteen hours of Public Speaking, including courses 1, 10, 32, and 41.

FOR FRESHMEN

***2. Introductory Course in Reading and Writing.** Throughout the year. Credit three hours a term. MESSRS. ADAMS, ANDERSON, BARKER, CURTIN, DUFFY, ELLEDGE, HOPPE, IRWIN, KELLOGG, SALE, SIBLEY, WARDLE, WEIR, WILSON, and others. M W F 8, 9, 10, 11, 12; T Th S 8, 9, 10, 11, 12. Rooms to be announced.

The aim of the course is to increase the student's ability to communicate his own thought and to understand the thought of others. The first term will be devoted primarily to the study of good diction, effective sentences, and the logic of paragraphs, the second to whole compositions. Assignment to sections will be made in *Barton Hall* the first term, and in *Goldwin Smith C* the second. MR. BROWN is in charge of the course.

Sections will be arranged for a limited number of students of more than average ability, especially those who expect to major in one of the humanities.

With the written recommendation of his freshman instructor, a freshman may be admitted to English 20 in the second term in place of the second term of English 2. With similar recommendation and the consent of the sophomore instructor concerned, a freshman may elect English 22 or 23 in the second term, in addition to the second term of English 2.

Freshmen who elect Social Science A, B may substitute for English 2 the interdepartmental course, **Oral and Written Expression**, described on page 82.

***2a. Introductory Course in Composition and Literature.** Second term. A repetition of the first term of English 2. T Th S 8. *Goldwin Smith A*.

***2b. Introductory Course in Composition and Literature.** First term. A repetition of the second term of English 2. May be entered by those who have passed the work of the first term. T Th S 8. *Goldwin Smith 134*.

***4. English for Foreigners.** Throughout the year. Credit three hours a term. A student, when recommended by his college, may take this course in lieu of English 2. Mr. ———. T Th S 12. *Goldwin Smith 160*.

***15. The Study of Poetry.** Second term. Credit three hours. Mr. ———. T Th S 11. *Goldwin Smith 156*.

Open to freshmen who have passed the first term of English 2 with a grade of 80 or better. Freshmen who have received a grade of 90 or better in the first term of English 2 may substitute this course for the second term of English 2 to satisfy the requirement in English, but they will be expected in addition to write a formal library paper. Those who pass course 15 may not take course 22 for credit.

FOR SOPHOMORES AND UPPERCLASSMEN

Note: Courses preceded by an asterisk are designed primarily for sophomores (see first courses listed in Groups I, III, IV). They may not be taken to satisfy the required number of hours in English by a student majoring in the department, after he has junior or senior standing.

Courses preceded by a dagger are intended for upperclassmen and may be elected by sophomores only with the consent of the instructor.

All other courses are strictly limited to upperclassmen.

Consult the description of the course for any special prerequisite.

GROUP I

Courses in composition and in the history and early literature of the language.

***19. Composition.** First term. Credit three hours. T Th 12 and an hour to be arranged. *Goldwin Smith 164*. Prerequisite, credit for both terms of English 2, or the equivalent. Mr. WARDLE and assistants.

A course designed for those who have completed the required work in English 2 without distinction, and who at any stage in their college course want additional drill in writing clear and accurate English. Attention will be given to spelling, punctuation,

sentence-structure, grammar, vocabulary, and composing paragraphs. Frequent practice in writing. Class discussion of elementary matters in composition will be supplemented by conferences upon individual difficulties.

Students who have passed English 2 with a grade of 70 or better should ordinarily take course 20, not 19.

*20. **Prose and Composition.** Repeated in the second term. Sections for each term will be listed in the Supplementary Announcements.

A course in writing open to those who have received credit for both terms of English 2, or the equivalent. Twenty periods will be devoted to the criticism of themes and to the study of special topics in composition; the rest of the time to reading good prose, frequent practice in writing, and personal conferences.

21. **Prose and Composition.** Second term. Credit three hours. Sections will be listed in the Supplementary Announcement.

A continuation of English 20, which is prerequisite. Twenty periods will be devoted to the study of usage, the sentence, effective wording, and types of writing; the rest of the time to reading good prose, frequent practice in composition, and personal conferences.

†84. **Advanced Composition.** Throughout the year. Credit three hours a term. Mr. WILSON. Th 7:30 and conferences. *Goldwin Smith* 248.

For qualified students who wish to develop a prose style of distinction. Constant practice, subject to rigorous criticism. Attention is focused on artistic narrative. Inasmuch as the number enrolled is necessarily limited, the instructor should be consulted before registration.

†85. **English Style and Usage.** Throughout the year. Credit two hours a term. Mr. TENNEY. W 7:30.

For upperclassmen who wish to study and practice the art of writing. Before registering in this course, consult the instructor. Not given in 1942-43.]

†86. **English Syntax.** Throughout the year. Credit three hours a term; the first term is prerequisite to the second. Mr. JONES. T Th 4:00.

For juniors preparing to teach English. The history and theory of the English sentence, with an analysis of English prose forms and practice in writing. Not given in 1942-43.]

†89. **Literary Criticism.** Second term. Credit three hours. Mr. SALE. The consent of the instructor must be secured before registration. T Th 11 and conferences.

A study of certain modern critical opinions and their bearing on the practice of literary criticism. Considerable writing of a critical nature will accompany the study. Not given in 1942-43.]

81. **Old and Middle English.** Throughout the year. Credit three hours a term. Mr. FRENCH. Room and hours to be arranged.

82. **The English Language.** First term. Credit two hours. Mr. JONES. T Th 12. *Goldwin Smith* 162.

The development of the English language, with consideration of language in general, including elementary phonetics. The course does not require previous knowledge of Old and Middle English.

GROUP II

Courses in periods, emphasizing important themes, interests, and forms.

†31. **Medieval Literature.** Throughout the year. Credit three hours a term. Mr. JONES. T Th S 9. *Goldwin Smith* 245.

A study of English translations of European literature from the introduction of Christianity to the fourteenth century, designed to trace the transmission of learning and the development into modern literature of subjects and forms. Lyric, dramatic, and narrative poetry; prose writings and legends; Dante's *Commedia*.

32. **The English Renaissance, Part I.** First term. Credit three hours. Mr. ADAMS. T Th S 10. *Goldwin Smith* 160.

Studies in non-dramatic literature from Wyatt to Drayton.

†33a. **The English Renaissance, Part II.** Second term. Credit three hours. Mr. BALD. T Th S 10. *Goldwin Smith* 162.

Studies in the poets and prose-writers of the period 1600-1660. Not given in 1942-43.]

33b. **Restoration Literature.** Second term. Credit three hours. Mr. BALD. T Th S 10. *Goldwin Smith* 162.

Studies in Dryden and his contemporaries and in Restoration Drama.

†34a. **Eighteenth Century Literature: Swift, Pope, and their Contemporaries.** First term. Credit three hours. Mr. SALE. T Th 11 and an hour to be arranged. *Goldwin Smith* 160.

A study of the prose and poetry characteristic of the first half of the eighteenth century, with some consideration of its relation to the social, political, and philosophical movements of the period.

†[34b. **Eighteenth Century Literature: The Age of Johnson.** First term. Credit three hours. Mr. SALE. T Th 11 and an hour to be arranged.

A course similar in intent to English 34a, but concerned with the literature of the latter half of the century. Not given in 1942-43.]

†35. **The Romantic Revival.** Throughout the year. Credit three hours a term. Mr. BROUGHTON. M W F 11. *Goldwin Smith* 134.

General literary tendencies and thought of the period. A study of the poetry, letters, and literary theories of Wordsworth, Coleridge, Byron, Shelley, Keats, and others.

Not open to students who have taken course 22, **The Romantic Poets**, in 1938-39 or 1939-40.

†36. **The Victorian Age.** Throughout the year. Credit three hours a term. Mr. BROWN. M W F 11.

First term: a study of the main currents and masterpieces in prose; second term: a study of the principal poets with special emphasis on Matthew Arnold. Not given in 1942-43.]

†38. **History of English Literature.** Throughout the year. Credit three hours a term; the first term is prerequisite to the second. Mr. BALD. M W F 9. *Goldwin Smith* 134.

A course specially designed for majors in English who wish to supplement with reading over a wider range work already done in courses of more restricted scope. First term: *Beowulf* to Dryden; second term: Addison to Hardy.

39. **American Literature.** Throughout the year. Credit three hours a term. Mr. THOMPSON. M W F 12. *Goldwin Smith* B.

First term: Colonial days to the Civil War; second term: from 1865 to the present.

GROUP III

Courses in important types and forms of literature.

*22. **Introduction to Poetry.** Second term. Credit three hours. Mr. THOMPSON. M W F 11. *Goldwin Smith* 290. Not open to those who have credit for English 15.

Emphasis is upon form and upon the enjoyment of oral reading. Those who care to do so may write verse.

*23. **Introduction to the Drama.** Second term. Credit three hours. Mr. MYERS. M W F 10. *Goldwin Smith* B.

An introduction to the drama as a form of literature, and to the distinguishing qualities of tragedy, comedy, melodrama, and farce. Reading of fifteen representative classical and modern plays.

*26. **Introduction to Prose Fiction.** First term. Credit three hours. Mr. BROWN. M W F 2. *Goldwin Smith* 156.

A study of representative types of the novel, both English and American, and of the past and present.

†[40a. **The Modern English Novel.** Second term. Credit three hours. Mr. SALE. T Th 11 and an hour to be arranged.

A critical study of the fiction of England since Hardy. Not given in 1942-43.]

†40b. **The Modern American Novel.** Second term. Credit three hours. Mr. SALE. T Th 11 and an hour to be arranged.

A critical study of American fiction beginning with the work of Mark Twain.

†41. **American Prose Fiction before 1850.** Second term. Credit two hours. Mr. SIBLEY. T Th 12.

Studies in early American prose fiction. Not given in 1942-43.]

†42. **Early Nineteenth Century Novel.** First term. Credit three hours. Mr. BROUGHTON. M W F 2. *Goldwin Smith* 134.

A survey of fiction from the advent of the Gothic novel to the beginnings of the Victorian. Extensive readings in the works of Jane Austen, Maria Edgeworth, Sir Walter Scott, and others.

43. **The English Novel in the Eighteenth Century.** Second term. Credit three hours. Mr. SALE. The consent of the instructor must be secured before registration. T Th 2 and conferences. *Goldwin Smith* 160.

A study of the representative novels of Defoe, Richardson, Fielding, and Sterne with some attention to the minor novelists.

†44. **European Fiction.** Throughout the year. Credit three hours a term. Mr. SIMMONS. M W F 12. *Goldwin Smith* 156.

Lectures and reading. Selected English, French, German, and Russian novels of the eighteenth and nineteenth centuries will be read. Special attention will be paid to the transmission of ideas and the development of trends in European fiction. All foreign novels will be read in English translation.

45. **The English Drama to 1642.** Throughout the year. Credit three hours a term. Mr. NUNGEZER. M W F 11. *Goldwin Smith* 156.

First term: the origin of the drama; mysteries, saint plays, moralities; folk plays, interludes; the rise of professional actors; the development of stagecraft; the court plays; the academic drama. Second term: the erection of permanent playhouses; the contemporaries and successors of Shakespeare; the suppression of acting.

[48. **Modern Drama.** Second term. Credit three hours. Open only to seniors who have completed course 23 and one other term of drama. Mr. MYERS.

A study of modern English, Continental, and American plays. Reading at the rate of three plays a week. Not given in 1942-43.]

53. **Recent English Poetry.** Second term. Credit three hours. Mr. FRENCH. T Th S 10. *Goldwin Smith* 134.

A study of English poets of this century: Yeats, Masfield, Stephens, Auden, and others.

[54. **Recent American Poetry.** Second term. Credit three hours. Mr. FRENCH.

A study of American poets of this century: Robinson, Frost, Sandburg, MacLeish, Eliot, and others. Not given in 1942-43.]

†[55. **Biography.** Throughout the year. Credit three hours a term. Mr. TENNEY. T Th S 9.

A study of Carlyle's theory of biography in *Heroes and Hero-Worship* precedes the study of Plutarch's *Lives* and of ancient and medieval biography. In the second term, a study of Boswell's *Johnson* precedes the reading of other modern biographies. Not given in 1942-43.]

[56. **Middle English Metrical Romances.** Second term. Credit three hours. Mr. FRENCH. T Th 2:30-4.

A study of Early English fiction. Not given in 1942-43.]

†58. **American Folk-Literature.** First term. Credit three hours. Mr. THOMPSON. M W F 3. *Goldwin Smith, Museum of Casts.*

Backgrounds of American literature and life revealed in traditional tales, ballads, proverbs, games, customs, and place-names. Emphasis upon ballads, and upon methods of collecting and classifying folklore.

GROUP IV

Courses presenting a considerable body of the work of major figures in English and American literature.

*24. **Introduction to Shakespeare.** First term. Credit three hours. Mr. BALD. M W F 10. *Goldwin Smith* B.

A reading of representative plays.

60. **Chaucer and his Age.** Throughout the year. Credit three hours a term. The first term is not prerequisite to the second. Mr. FRENCH. M W F 12. *Goldwin Smith* 162.

First term: Chaucer's life; his contemporaries; *Troilus and Criseyde*; the minor poems; second term: *The Canterbury Tales* and Chaucer's successors in the fifteenth century.

61. **Shakespeare.** Throughout the year. Credit three hours a term. Mr. ADAMS. T Th S 9. *Goldwin Smith* B.

Open to juniors and seniors in the College of Arts and Sciences; to others by permission.

63. **Milton.** Second term. Credit three hours. Mr. JONES. T Th S 10. *Goldwin Smith* 156.

A study of Milton's poetry and of selections from his prose.

[66. **Swift.** Second term. Credit three hours. Mr. SALE. Not given in 1942-43.]

70. **Wordsworth.** Second term. Credit three hours. Mr. BROUGHTON. M W F 2. *Goldwin Smith* 248.

A study of Wordsworth's poetry and prose.

[71. **Coleridge and Keats.** First term. Credit three hours. Mr. ————. T Th 10 and an hour to be arranged. Not given in 1942-43.]

72. **Byron and Shelley.** Throughout the year. Credit three hours a term. Mr. BROUGHTON. M W F 12. *Goldwin Smith* 160.

The first term will be devoted mainly to Byron's poems and letters; the second to Shelley.

†76. **Carlyle and Browning.** Second term. Credit three hours. Mr. BROWN. M W F 11. *Goldwin Smith* 128.

A study of imaginative literature in the Victorian age, illustrated in the earlier major works of Carlyle and Browning.

78a. **Emerson, Thoreau, and Whitman.** First term. Credit three hours. Prerequisite, English 39. Mr. MYERS. M W F 9. *Goldwin Smith* 156.

An intensive study of the American classics with special attention to transcendentalism and prophecy.

78b. **Poe, Hawthorne, and Melville.** Second term. Credit three hours. Prerequisite, English 39. Mr. MYERS. M W F 9. *Goldwin Smith* 156.

An intensive study of the American classics with special attention to romance and tragedy.

79. **T. S. Eliot.** First term. Credit three hours. Mr. BROWN. M W F 11. *Goldwin Smith* 128.

A study of the poetic and critical writings of Mr. Eliot with some attention to international influences in recent literature. The permission of the instructor must be secured before registration.

†Introduction to Russian Literature and Culture. (See Russian 5.) Throughout the year. Credit three hours a term. Mr. SIMMONS. M W F 10. *Goldwin Smith* 134.

THE FINE ARTS

Students who wish to do their major work in the Fine Arts will choose one of these three options:

1. *General Course.* For major work in this option the following courses must be completed: (1) nine hours in Aesthetics, namely Philosophy 8a, 8b, and 19. (2) (a) Music, two approved courses; (b) nine hours in the History of Architecture, Painting, and Sculpture; (c) nine hours of literature, to be elected from approved courses in Classics, Comparative Study of Literature, English, German, Public Speaking, and Romance Languages. (3) Twelve hours of approved advanced courses in one of three fields: (a) Literature (literary history, criticism, writing, and dramatics); (b) Art and Architecture (history, composition, and design); (c) Music (theory, composition, and application).

2. *History of Art.* For a major in the History of Art 1a, 1b, 10a, 10b and eighteen other hours in the History of Art must be completed. In addition, there must be completed fifteen hours of related courses, including Philosophy 8a and 8b.

3. *History and Practice of Art.* For a major in this option the student will include in his course of study thirty hours in courses offered by the College of Architecture in the practice of art. The major work of this option will be in the history of art. Students who elect this option will be admitted to the Graduate School as candidates for the degree Master of Fine Arts with a program in the practice of art which may be completed in two years of graduate study.

The courses which follow are those offered by the Department of Fine Arts, together with certain courses open to students of this College in the College of Architecture.

The courses listed from the College of Architecture may not be counted in the ninety hours required in the College of Arts and Sciences.

GENERAL

[A. **Survey of European Paintings and Sculptures in American Museums.** First term. Credit three hours. Open to freshmen. Mr. CHURCH. M W F 11. *Goldwin Smith* 128. Not given in 1942-43.]

Aesthetics: Psychology of Art. (See Psychology 8a). Mr. OGDEN.

Aesthetics: Philosophy of Art. (See Philosophy 8b). Mr. CHURCH.

HISTORY OF ART

1a. **History of Painting and Sculpture: Ancient and Medieval.** First term. Credit three hours. Mr. WAAGÉ. All students must register for this course with Mr. WAAGÉ or Mr. FINLAYSON on registration day, freshmen at *Barton Hall*, upperclassmen at *White Hall* 304. M W F 2. *Goldwin Smith, Museum of Casts.*

1b. **History of Painting and Sculpture: Renaissance and Modern.** Second term. Credit three hours. Mr. FINLAYSON. Register with Mr. FINLAYSON at 304 *White*. M W F 2. *White* 201.

2. **History of Greek Sculpture.** First term. Credit three hours. Mr. WAAGÉ. M W F 10. *Goldwin Smith, Museum of Casts.*

3. **Art of the Roman Empire.** Second term. Credit three hours. Mr. WAAGÉ. M W F 10. *Goldwin Smith, Museum of Casts.*

After a sketch of Etruscan and Republican art, the evolution of Hellenistic sculpture and painting will be traced through the Empire to the sixth century. A few lectures will be devoted to the minor arts.

4. **Primitive Art: the Art of Early Societies.** Second term. Credit three hours. Mr. WAAGÉ. M W F 11. *Goldwin Smith, Museum of Casts.*

The study of the relation between culture and art in early societies where sculpture and painting were indispensable elements in everyday life; the shaping and use of art forms to satisfy the group needs of the culture of Old Stone Age Europe, ancient Egypt and Mesopotamia and Central and South America (Mayan, Aztec, and Incan cultures), with some consideration of the influence of these primitive and archaic forms on modern art.

5. **Renaissance and Modern Sculpture.** First term. Credit three hours. Mr. UNDERWOOD. T Th S 10. *Goldwin Smith, Museum of Casts.*

This course includes a study of the evolution of sculpture in Europe and America, and of the changes in taste from the fifteenth century to the present day, by means of analyses of the works of representative sculptors and the use, where necessary, of parallels in painting and architecture.

6. **Italian Painting of the Renaissance.** Second term. Credit three hours. Mr. UNDERWOOD. T Th S 10. *Goldwin Smith, Museum of Casts.*

The course treats of the history of painting in the principal centers of Italy. Among the major figures whose lives and works will be studied are Giotto, Fra Angelico, Masaccio, Botticelli, the Bellinis, Leonardo, Giorgione, Titian, Michelangelo, Tintoretto.

[7. **The Impressionists.** Not given in 1942-43.]

8. **Introduction to Chinese and Japanese Art.** Second term. Credit three hours. Mr. UNDERWOOD. Register with Mr. UNDERWOOD. T Th S 11. *Goldwin Smith* 35.

Chinese art, in its more important media, is traced from the Bronze Age to the Manchu dynasty. Some account is taken of the influences of Buddhist India and the West. The art of Japan is viewed both in its relation to that of China and in its more independent aspects.

9. **The Methods and Materials of the Art of Painting.** Throughout the year. Credit three hours each term. Mr. SITTON. T Th 12 and one laboratory period to be arranged. *White* 201. Fee, \$3 a term.

A survey of the styles of painting as they have been affected by the materials and techniques of the various epochs. Lectures and readings are supplemented by studio work in which the student executes designs in mosaic, egg tempera, fresco, and the various methods of oil painting. Previous experience in drawing is not required.

10a. **History of Architecture: Ancient and Medieval.** First term. Credit three hours. Mr. UNDERWOOD. Open to freshmen with the permission of the instructor. M W F 9. *Goldwin Smith, Museum of Casts.*

10b. **History of Architecture: Renaissance and Modern.** Second term. Credit three hours. Mr. UNDERWOOD. A continuation of 10a. M W F 9. *Goldwin Smith, Museum of Casts.*

11. **American Painting.** First term. Credit three hours. Mr. FINLAYSON. Painting in the United States from colonial days to the present. Register with Mr. FINLAYSON at *White* 304. M W F 11. *White* 201.

[26a. **Seventeenth and Eighteenth Century Painting.** First term. Credit three hours. Mr. FINLAYSON. Painting of the Baroque and Rococo periods in the major European

countries. Register with Mr. FINLAYSON at *White 304*. M W F 12. *White 201*. Given in alternate years. Not given in 1942-43.]

[26b. **Modern Painting.** Second term. Credit three hours. Mr. FINLAYSON. Nineteenth century painting in France, England, and Germany, and the major movements in twentieth century painting. Register with Mr. FINLAYSON at *White 304*. M W F 12. *White 201*. Given in alternate years. Not given in 1942-43.]

28a. **Romanesque and Gothic Sculpture.** First term. Credit three hours. Mr. FINLAYSON. Sculpture in the major European countries from 1000 A. D. through the Gothic period. Register with Mr. FINLAYSON at *White 304*. M W F 12. *White 201*. Given in alternate years.

28b. **Gothic Painting.** Second term. Credit three hours. Mr. FINLAYSON. Painting in Italy in the fourteenth century, and in France, Germany, and the Netherlands in the fourteenth and fifteenth centuries. Register with Mr. FINLAYSON at *White 304*. M W F 12. *White 201*. Given in alternate years.

29, 30. **Historical Seminar in Painting and Sculpture.** Throughout the year. Credit two hours a term. Mr. FINLAYSON. Registration limited. Open to graduate students and qualified undergraduates. Ten hours of the History of Art or their equivalent are prerequisite. By appointment. Students wishing to elect this course must register with Mr. FINLAYSON.

COURSES IN THE COLLEGE OF ARCHITECTURE

Open to election by students in the College of Arts and Sciences

History of Architecture

Ancient Architecture. (See Architecture 410.) First term. Credit three hours. Mr. UNDERWOOD. Egyptian, Western Asiatic, Greek, Roman, and Early Christian architecture. Lectures and examinations. T Th S 9. *White 201*.

Medieval Architecture. (See Architecture 411.) Second term. Credit four hours. Prerequisite, course 410. Mr. DETWEILER. Byzantine, Mohammedan, Romanesque, and Gothic architecture. Lectures, seminars, and examinations. T Th S 9, and one additional hour to be arranged. *White 201*.

Renaissance Architecture. (See Architecture 412.) First term. Credit four hours. Prerequisite, course 411. Mr. DETWEILER. Architecture of the Renaissance in the principal European countries. Lectures, seminars, and examinations. M W F 9, and one additional hour to be arranged. *White 201*.

American and Contemporary Architecture. (See Architecture 413.) Second term. Credit three hours. Prerequisite, course 412. Mr. DETWEILER. The architecture of the United States in the seventeenth and eighteenth centuries and of Europe and the United States from 1800 to the present. Lectures, readings, and examinations. M W F 9. *White 201*.

Composition

These courses consist of the study and application of the underlying principles of Composition. They are presented by means of series of problems in pictorial and decorative design in line, tone, and color, or in sculptural groups. Special study is made of design appropriate to architectural settings for contemporary use. Collaborative problems are given from time to time which require the combined efforts of painter, sculptor, architect, and landscape architect. Criticism periods in all courses in composition are held Tuesday and Thursday afternoons, 1:40-4; other periods will be arranged.

In Courses 300 to 304 the number of credit hours a term is based upon one credit hour per laboratory period of two and one-half hours. Credit hours to be arranged upon registration in consultation with instructor in charge.

Elementary Composition. (See Architecture 300.) Throughout the year. Credit three hours each term. *Franklin 305*. Fee, \$3.

Intermediate Composition. (See Architecture 301.) Throughout the year. Credit three to six hours each term as arranged. *Franklin 305*. Fee, \$5.

Advanced Composition. (See Architecture 304.) Throughout three terms. Credit four to six hours each term as arranged. *Franklin 305*. Fee, \$5.

Drawing and Painting

This sequence of courses deals with the study of form and its representation by means of line, tone, and color. Emphasis is given to the drawing and painting of forms in their spatial

relationships. Geometric objects, casts, and still-life and landscape materials are used in the first year's work. In the intermediate and advanced courses, studies of the nude and draped model and of portraiture are added.

In courses 311 and 314 the number of credit hours per term is based upon one credit hour per laboratory period of two and a half hours. Credit hours to be arranged upon registration in consultation with instructor in charge.

Elementary Drawing and Painting. (See Architecture 309.) Throughout the year. Credit three hours each term. M 3, White 201, and two of the following: T Th 10-12:30, W F 1:40-4. *Morse Hall Gallery.* The beginning course for all students except architects and landscape architects. An introduction to the principles and methods of decorative and pictorial design and of representational drawing and painting, using various media. The principles of color harmony and of the pictorial use of color. Discussion of historical and contemporary examples, lectures, readings, examinations, and analytical and creative exercises in the studio. Fee, \$3.

Intermediate Drawing and Painting. (See Architecture 311.) Throughout four terms. Credit three to six hours each term as arranged. Section A: M W Th F 10-12:30. Section B: M W Th F 1:40-4. *Franklin 306.* Fee, \$5.

Advanced Drawing and Painting. (See Architecture 314.) Throughout four terms. Credit four to ten hours each term as arranged. M T W F Th 8-12:30. *Franklin 310.* Fee, \$5.

Sculpture

The courses in modeling begin with a study of the basic relationships of forms to voids. Architectural ornament and the human figure are studied from casts. Beginning in the second year, nude and costumed models are used. Portraiture is studied. The work closely parallels that in Composition. Studies made in these modeling courses may be used as material for problems in Composition. Instruction is given in casting in plaster, in direct carving, and in the use of the pointing machine.

In courses 331 and 333 the number of credit hours per term is based upon one credit hour per laboratory period of two and a half hours. Credit hours to be arranged upon registration in consultation with instructor in charge.

Elementary Sculpture. (See Architecture 330.) Throughout the year. Credit two to four hours each term as arranged. Prerequisite, course 310. Th S 8-10:30. *Morse Hall.* Fee, \$5.

Intermediate Sculpture. (See Architecture 331.) Throughout the year. Credit three to six hours each term as arranged. T Th S 8-12:30. *Morse Hall.* Fee, \$5.

Advanced Sculpture. (See Architecture 333.) Throughout four terms. Credit four to ten hours each term as arranged. Hours same as 331. *Morse Hall.* Fee, \$5.

GEOLOGY

Those who are planning a career in geology or will seek the recommendation of the department for continuation of their studies in graduate work must complete the following courses for a major: Geology A, 102, 103, 107, 200, 205, 311, 317, either 318 or 319, 402, 403, 500. In related subjects, fifteen hours, which should include Chemistry 102 or 104; Mathematics 15; Physics 3, 4 or 3, 6; and a selection from the following: Astronomy 180, 181; Meteorology 1, 2; Zoology 1, 16; Philosophy 15; Mathematics 20; Botany 1; Soils 1. Such students should if possible organize their schedules for the major at the beginning of the sophomore year.

Those who choose geology and geography as a major in a general cultural program may satisfy the requirements by completing not less than twenty-four hours in any of the advanced courses in geology and geography, and fifteen hours of related subjects selected from the list in the preceding paragraph and from these added items: Economics 1, 61a, 61b, 81, 83; Sociology 2, 3; History 25, 42, 82, 83, 93.

Those who have special interests in fields closely connected with some one branch of geology may also have approved by the professor in charge of that branch any of the following courses: Chemistry 130, 135, 205, 206, 210, 220, 221, 225, 405, 410, 530; Mathematics 5, 10, 65a, 65b, 65c; Physics 60, 61, 62; Biology 1; Zoology 8.

GENERAL COURSES

***A. General Geology and Physiography.** Introduction to Earth Science. Throughout the year. Credit three hours a term. Mr. VON ENGELN and Messrs. CHISNELL and FITZ-

RICK. Lectures, T Th 11. *McGraw*. Laboratory, M W Th or F afternoons, 1:40. *McGraw*. Laboratory fee, including field trips, \$3 a term.

Students must register for laboratory assignments. The course comprises an introduction to the various branches of geological science, lithologic, physiographic, structural, glacial, economic, and historic. Methods of geological and physiographic study in the field and laboratory are emphasized.

*100. **Introductory Geology.** Repeated in the second term. Credit three hours. Mr. NEVIN and Mr. LUDLUM. Lectures, T Th 9, first term; T Th 11, second term. *Warren Hall* 25. Laboratory, M T W Th F afternoons, 1:40. *McGraw*. Laboratory fee, including field trips, \$4.25.

Students must register for laboratory assignment. The fundamental principles of this branch of science. This course cannot be elected by Arts and Sciences students for satisfaction of the science group requirement.

*401. **Ancient Life (History of Life).** First term. Credit three hours. Mr. MERRIAM. A résumé of organic development during the course of earth history, with emphasis on evolution of vertebrate life from primitive fish to man. Lectures, M W F 9. *McGraw*. Demonstrations to accompany Friday lecture.

The course is designed for the general student who desires a fundamental but not too technical knowledge of evolution and distribution of life, and an understanding of the geologic background from which the human group has emerged.

DYNAMIC AND STRUCTURAL GEOLOGY

102. **Structural Geology.** First term. Credit three hours. Prerequisite, Geology A or 100 by permission. Mr. LUDLUM. Lectures, M W 11. Laboratory, M 1:40. *McGraw*.

A study of geologic structures and their causes. Part of the laboratory periods will be spent in the field. Laboratory fee, \$3.

103. **Sedimentation.** First term. Credit three hours. Prerequisite, Geology A, or 100 by permission. Mr. NEVIN. Lectures, M W 9. Laboratory, W 1:40. *McGraw*.

Part of the laboratory periods will be spent in the field. This course is devoted to a study of the principles involved in the formation of sediments. Registration by permission. Laboratory fee, \$3.

106. **Special Work in Sedimentation, Structural, and Petroleum Geology.** Throughout the year. Credit variable. Prerequisites, variable. Mr. NEVIN. Hours to be arranged. *McGraw*.

For advanced students and graduates. Original investigation adapted to the needs of the student.

107. **Geologic Mapping.** Given in the Summer Field School.

A discussion of the fundamental methods used in geologic mapping, together with practical work in the field. For students majoring in Geology.

GEOMORPHOLOGY AND GEOGRAPHY

200. **Geomorphology.** First term. Credit three hours. Prerequisite, Geology A. Mr. VON ENGELN. Lectures, T Th 9. Laboratory, T 1:40. *McGraw, Physiography Laboratory*. Laboratory fee, including field trips, \$4.50.

The interpretation of land forms with regard to process and stage and the adjustment of topography to structure. The technology of geomorphologic description.

201. **Military and Naval Geography.** First term. Credit 1 hour. W 12. Mr. VON ENGELN. *McGraw*.

Designed to acquaint the student with geographical factors and data that may have significance for the military and naval effort of the United States in the World War.

205. **Glaciers and Glaciation.** Second term. Credit three hours. Prerequisite, Geology A. Mr. VON ENGELN. Lectures, T Th 9. Laboratory, T 1:40. *McGraw, Physiography Laboratory*.

Living glaciers and the phenomena of the glacial period. Students are required to have one or more Saturdays free for all-day excursions in the Spring. Mapping and interpretation of glacial deposits. Laboratory fee, including field trips, \$4.50.

206. **Commercial Geography.** Second term. Credit three hours. Mr. VON ENGELN. Lectures, M W F 9. *McGraw, Geology Lecture Room*. Not open to freshmen.

The geographic factors affecting production and distribution of commodities, historically and in modern times. Natural geographic regions in relation to their past and

prospective exploitation. Nature of city sites and the geographic conditions of city growth, organization, and functioning. Student must have had an elementary course either in Economics or in Geology before taking this course.

208. **Advanced Physiography, Experimental and Research Work.** Credit variable. For advanced and post-graduate students. Registration by permission. Mr. VON ENGELN.

209. **Seminary.** First or second term. Credit one hour. For post-graduate students and seniors under special circumstances. Registration by invitation. Mr. VON ENGELN.

MINERALOGY AND PETROGRAPHY

311. **Elementary Mineralogy.** Repeated in second term. Credit three hours. Prerequisite, Chemistry 102 or 104. Mr. BURFOOT and Mr. BATES. Lectures: first term: W F 10; second term: M W 12. Laboratory, both terms: Th or F, M if necessary. Additional hours if required. *McGraw, Geology Lecture Room.* Fee, \$4.50.

Registration with the Department before beginning of the course is required. For beginners who desire a general knowledge of crystallography and of the commonest minerals, the properties by which they are recognized, their uses, and their significance as constituents of the crust of the earth. In the laboratory, various determinative methods are used for identifying the minerals.

316. **Metamorphic Geology.** First term. Credit three hours. For advanced students. Registration by permission only. Mr. BURFOOT. T Th 12 and one additional period to be arranged. *McGraw.*

Registration with the Department before beginning of the course is required. A general survey of the field of metamorphic geology with especial emphasis on processes and criteria. Metamorphic differentiation, the facies classification of metamorphic rocks, and retrogressive metamorphism are among the subjects considered. Special suites illustrating these phenomena are used.

317. **Optical Mineralogy.** First term. Credit three hours. Prerequisite, Geology 311. Mr. BURFOOT. Lectures, M Th 10. Laboratory, S 9-11:30. *Mineralogy Laboratory, McGraw.* Laboratory fee, \$3.

Registration with the Department before the beginning of the course is required. The theory and use of the microscope in the determination and study of minerals and rocks. The commoner rock-forming minerals are studied in fragments and in thin sections.

318. **Petrology.** Second term. Credit three hours. Prerequisite, Geology 317. Mr. BURFOOT. Lectures, T Th 10. Laboratory, F 9-11:30. *Mineralogy Laboratory, McGraw.* Fee, \$3. Given in alternate years.

Registration with the Department before the beginning of the course is required. A consideration of the commoner kinds of igneous rocks, of various classifications used, and of the general principles of petrology, including the origin of and the conditions under which igneous rocks are formed.

[319. **Sedimentary Petrography.** Second term. Credit three hours. Prerequisite, Geology 317. Mr. BURFOOT. Lectures, T Th 10. Laboratory, F 9-11:30. *Mineralogy Laboratory, McGraw.* Fee, \$3. Given in alternate years, not in 1942-43.]

Registration with the Department before the beginning of the course is required. The methods of investigating the mineral composition, texture, and other physical characteristics of sedimentary rocks, and some of the applications of these methods to geological problems.

320. **Advanced or Special Work in Mineralogy, Crystallography, or Petrology.** Throughout the year. Credit variable. Prerequisite, variable. Mr. BURFOOT. *McGraw.* Adapted to the needs of the individual student.

321. **Seminar.** Throughout the year. Credit one hour a term. Mr. BURFOOT. M 4:15. *Mineralogy Laboratory, McGraw.* Given if desired by a sufficient number of students.

PALEONTOLOGY AND STRATIGRAPHIC GEOLOGY

402. **Stratigraphy.** First term. Credit three hours. Prerequisites, Geology 102, 103, and 403; Geology 102 and 103 may be taken concurrently. Two week-end field trips of two days each at opening of term. Lectures, M W F 12. Mr. MERRIAM.

Classification, nomenclature, and distribution of the stratified rocks; criteria of geologic correlation. Emphasis on the New York Paleozoic section.

403. **Introductory Paleontology.** Throughout the year. Credit three hours each term. Prerequisite, Geology A or Geology 100 by permission. Mr. MERRIAM. First term,

lecture T 10, laboratory Th 1:40 and one additional laboratory period to be arranged. Second term, lecture M 10, laboratory M 1:40 and one additional laboratory period to be arranged. Two laboratory periods required each term. Laboratory fee, \$3 a term.

First term, morphology and evolution of fossil invertebrates; second term, index fossils and faunas of the geologic periods.

406. Paleontologic and Stratigraphic Problems. Throughout the year. May be begun either term. Credit variable. For advanced and graduate students. Prerequisite, permission of the instructor. Mr. MERRIAM. Conference by arrangement. *McGraw* 28.

407. Paleobotany. Second term. Credit one hour. Mr. MERRIAM. W 10. A brief résumé of the history of the plants, with emphasis upon their stratigraphic distribution, their value as indicators of past climates, and their influence on the evolution of land-animal life.

ECONOMIC GEOLOGY

500. General Economic Geology. Throughout the year. Credit three hours a term. Prerequisite, Geology A and 311. Mr. ANDERSON. Lectures, T Th 11. Laboratory or field trip, F 1:40. *McGraw*. Laboratory fee, \$3 a term.

The origin, nature, distribution, uses, and economics of mineral products. First term, non-metals, including coal, oil, gas, fertilizers, etc.; second term, the ore deposits of the different metals.

***501. Engineering Geology.** Repeated in second term. Credit four hours. For engineering students. Others only by permission. Mr. ANDERSON and Mr. HUNTER. Lectures, M W 11. Two laboratory periods, T Th 1:40. *McGraw*. Not the equivalent of Geology A or 100. Laboratory fee, including field trips, \$4.50.

A discussion of the practical application of geologic principles to engineering work, and of the occurrence of such economic materials as are of importance to engineering students.

502. Petroleum Geology. Second term. Credit three hours. Prerequisite, Geology A or 100 by permission. Mr. NEVIN. Lectures, M W 9. Laboratory, W 1:40. *McGraw*.

A course on the geology and distribution of petroleum. Laboratory fee, \$3.

511. Advanced or Special Work in Economic Geology. Throughout the year. Credit variable. Prerequisite dependent on the nature of the work. Mr. ANDERSON. Day and hour to be arranged. *McGraw*. Laboratory fee, \$3 a term.

512. Economic Geology Seminar. Throughout the year. Mr. ANDERSON.

GERMAN

For a major in German the following courses must be completed: (1) in German, courses 1-5 or their equivalent, and at least twenty-one hours of advanced courses, including 15, 21, and at least one course each in Lessing, Goethe, and Schiller; (2) in related subjects, at least fifteen hours selected from Bibliology, the Classics (Archaeology, Greek, Latin), Comparative Study of Literature, English, History, Philosophy, Romance Languages, Russian Language and Literature, Scandinavian Languages and Literatures.

[*1. Course for Beginners: Oral Training, Grammar, Composition, Translation. Second term only. Credit six hours. Mr. SCHNEIDER.

This course is equivalent to first and second year German of the entrance requirements (credit two units). It may be elected for three hours' credit by students who have entrance credit for only one unit of German (first year German). Not given in 1942-43.]

***1a. Course for Beginners: Oral Training, Grammar, Composition, Translation.** Throughout the year. Credit three hours a term. Messrs. POPE, ANDREWS, LANGE, and MUELLER. M W F 8, 9, 10, 11; T Th S 9. *Goldwin Smith* 190, 177, 183, 190, 183.

This course is equivalent to first and second year German of the entrance requirements (credit two units). It may be elected in the second term by students who have had first year German (one unit).

***1c. Course for Chemical Engineers: Grammar, Reading of Texts in Chemistry.** Throughout the year. Credit three hours a term. Messrs. ANDREWS and MUELLER. M W F 11, 12. *Goldwin Smith* 183, 190.

Open to students of the College of Engineering and by special permission to others.

***1g. Course for Graduates.** See Announcement of the Graduate School.

***3. Intermediate Course, Oral Training, Grammar, Composition, Translation.** Second term. Credit five hours. Prerequisite, German 1, 1a, or entrance credit for two

units of German (first and second year German). Mr. SCHNEIDER. M W T Th F 10. *Goldwin Smith* 177.

This course is equivalent to third year German of the entrance requirements.

*3a. **Intermediate Course. Oral Training, Grammar, Composition, Translation.** Throughout the year. Credit three hours a term. Prerequisite, German 1, 1a, or entrance credit for two units of German (first and second year German). Messrs. LANGE and SCHNEIDER. M W F 9, 10; T Th S 10. *Goldwin Smith* 190, 190, 190.

This course is equivalent to third year German of the entrance requirements.

*4. **Elementary German Composition and Conversation.** Throughout the year. Credit three hours a term. Open to those who are taking or have taken German 3, or its equivalent. Messrs. POPE and MUELLER. M W F 9, 12. *Goldwin Smith* 183.

Exercises conducted in German. Course 4 may be combined with courses 3 or 5.

*5. **Modern German Texts.** Throughout the year. Credit three hours a term. Prerequisite, German 3, or its equivalent. Messrs. ANDREWS and MUELLER. T Th S 11, 12. *Goldwin Smith* 190, 183.

Extensive reading and discussion.

[*6. **German Civilization.** Second term. Prerequisite, three years of entrance German, or its equivalent. Open to freshmen. Not accepted in fulfillment of the underclass group requirements. In charge of Mr. POPE. Credit two hours.

Lectures in English, translation, and outside reading in German, on the general aspects of German civilization. Not given in 1942-43.]

*7. **German Literature from Goethe to the Present.** Throughout the year. Credit two hours a term. Open to sophomores and upperclassmen. Mr. LANGE. T Th 11. *Goldwin Smith*, first term, 183; second term, 245.

A survey of German literature in its relation to general European thought. Lectures in English with assigned reading in available translations. No requirements in German. May not be offered in fulfillment of the requirement in foreign language.

*8. **Scientific German.** Second term. Credit three hours. Prerequisite, German 1-3, or three years of German in high school. Mr. ANDREWS. T Th S 11. *Goldwin Smith* 183.

10. **Advanced German Composition and Conversation.** Throughout the year. Credit three hours a term. Prerequisite, German 1-4, or the equivalent. Mr. SCHNEIDER. M W F 11. *Goldwin Smith* 177.

Exercises conducted in German. This course must be completed by students who desire to be recommended as teachers of German.

11. **Schiller's Life and Works.** First term. Credit three hours. Prerequisite, German 1-3, or the equivalent. Mr. SCHNEIDER. T Th S 10. *Goldwin Smith* 183.

13. **Goethe's Life and Works including Faust.** Throughout the year. Credit three hours a term. Prerequisite, German 1-3, or the equivalent. Mr. LANGE. M W F 12. *Goldwin Smith* 177.

[15. **Survey of German Literature.** Lectures in English, collateral reading in German. Throughout the year. Credit three hours a term. Prerequisite, German 1-3, or the equivalent. Mr. POPE. Not given in 1942-43.]

[16. **Contemporary German Literature.** Throughout the year. Credit three hours a term. Prerequisite, German 1-5, or the equivalent. Mr. SCHNEIDER.

A study of the literature of modern Germany, including foreign influences. Lectures in German, recitations, and collateral reading. Not given in 1942-43.]

17. **Nineteenth Century Drama.** Kleist, Grillparzer, Hebbel, Hauptmann. First term. Credit three hours. Prerequisite, German 1-3, or the equivalent. Mr. POPE. M W F 9. *Goldwin Smith* 220.

18. **Lessing's Life and Works.** Second term. Credit three hours. Prerequisite, German 1-3, or the equivalent. Mr. SCHNEIDER. T Th S 11. *Goldwin Smith* 177.

[19. **German Lyric Poetry from Goethe to George.** Lectures in English, with assigned reading. Second term. Credit three hours. Prerequisite, German 1-3, or the equivalent. Mr. LANGE. Not given in 1942-43.]

[20. **The German Novel from 1800 to the Present.** Lectures in English, with assigned reading. First term. Credit three hours. Prerequisite, German 1-3, or the equivalent. Mr. LANGE. Not given in 1942-43.]

21. **Introduction to the Study of the History of German Literature.** Lectures and practical assignments in bibliography. First term. Credit three hours. Mr. SCHNEIDER. M 2:30-4:30. *Library.* German Seminary.

25. **Wagner's Life and Works.** Second term. Credit three hours. Mr. POPE. T Th S 12. *Goldwin Smith* 190.

Lectures in English on Wagner's theory of the music drama, the sources of his operas, his place in German literature, and his influence on modern culture. The texts of the principal operas will be read in class, and occasional illustrative recitals will be given.

A knowledge of German is not required. The textbook contains the German and English texts in parallel columns. May not be offered in satisfaction of the requirement in foreign language.

35. **German Romanticism.** Second term. Credit two hours. Open to qualified undergraduates and graduates. Mr. LANGE. W 3-5. *Goldwin Smith* 177.

Lectures in English on the main currents of feeling and the chief literary figures between 1780 and 1840. Discussion of texts and collateral reading.

[36. **Friedrich Nietzsche.** Second term. Two hours a week. Open to qualified undergraduates and graduates. Mr. LANGE. By appointment. Not given in 1942-43.]

37. **Middle High German.** First term. Credit three hours. Prerequisite, German 1-5. Mr. POPE. Hours to be arranged. *Goldwin Smith* 182.

[40. **Teachers' Course in Methods.** First term. Credit two hours. Prerequisite, German 1-5, 10, and twelve hours of advanced work in German literature or philology. Mr. POPE. Not given in 1942-43.]

42. **Gothic.** First term. Credit three hours. Mr. ANDREWS. T Th S 11. *Goldwin Smith* 177.

43. **Old High German.** Second term. Credit three hours. Prerequisite, German 37. Mr. ANDREWS. Hours to be arranged.

49. **Seminary in German Literature.** First term. Credit two hours. Primarily for graduates. Mr. LANGE. Th 3-5. *Goldwin Smith* 177.

Problems in seventeenth century literature.

52. **Seminary in Germanic Philology.** Second term. Credit two hours. Primarily for graduates. Mr. ANDREWS. Th 3-5. *Goldwin Smith* 177.

Germanic Antiquities. A consideration of our sources of knowledge of the Germanic people up to and including the migrations.

GOVERNMENT

For a major in Government the following courses must be completed: (1) either course 1 and course 2 or 3, or Social Science A and B; (2) eighteen additional hours in the department; (3) in related subjects, at least twenty-four hours of unstarred courses to be selected from the following, of which twelve hours must be in History—any course in History; any unstarred course in Economics or Sociology; Philosophy 4, 5; Architecture 710, 711, 712, 713, 714.

Juniors and Seniors who have a grade of 85 or better in one-half the hours they have passed may take informal study in Government.

Candidates for honors in Government will be required to take three hours of informal study during each semester of the senior year. They will also be required to pass a comprehensive examination.

Students registered in the combined Arts-Law course with a major in Government will be required to complete a minimum of twelve hours of upperclass courses in Government and fourteen hours from the list of courses in related fields printed above.

*1. **American National Government.** First term. Credit three hours. Mr. CUSHMAN. Lectures, T Th 9. Quiz hours to be arranged. *Goldwin Smith* A.

American national government, its historical development, organization, powers, and practical working. Attention will be given to governmental problems arising from the war.

*1a. **Elementary American Government and Politics.** First term. Credit three hours. Enrollment limited. Open only to students in the colleges of Agriculture and Home Economics. Mr. HUZAR. M W F 9. *Plant Science* 141.

[*2. **Comparative Government.** Second term. Credit three hours. Open to students who have credit for Government 1 and to others with the consent of the instructor. Mr. WATKINS. T Th 9 and a quiz-hour to be arranged. *Boardman* 110.

Government and politics of England, France, Germany, Russia, and Italy. Not given in 1942-43.]

*3. **State and Local Government.** Second term. Credit three hours. Open to students who have credit for Government 1 and to others with the consent of the instructor. Mr. HUZAR. T Th 9. Quiz hours to be arranged. *Boardman* 122.

American state and local government, their historical development, organization, powers, and practical working.

4. American Party Politics. First term. Credit three hours. Open to upperclassmen and to sophomores with consent of the instructor. Mr. TRUMAN. T Th S 12. *Boardman 122.*

The organization and operation of major and minor political parties in the United States, including nominations, campaign strategy, party leadership and finance, local machines, social and geographic patterns of political allegiance, and the party as a legislative device.

5. Pressure Politics and Propaganda. Second term. Credit three hours. Open to upperclassmen and to sophomores with consent of the instructor. Mr. TRUMAN. T Th S 12. *Boardman 122.*

Types of political pressure groups and their operation, including detailed examination of selected examples; methods of controlling political opinion; the role of interest groups in elections and in the formation and execution of governmental policy.

6. Municipal Government. First term. Credit three hours. Open to sophomores with the consent of the instructor and to upperclassmen. Mr. HUZAR. M W F 11. *Boardman 121.* A fee of \$1 will be charged in lieu of a text-book.

Urbanization; city-state relations; and politics, organization, finances, and selected functions of city government.

7. Public Administration. Second term. Credit three hours. Open to sophomores with the consent of the instructor and to upperclassmen. Mr. HUZAR. M W F 11. *Boardman 121.*

Efficiency and responsibility in public administration; principles and problems of administrative organization, the civil service, fiscal management, and methods of administrative action.

9. Introduction to International Relations. First term. Credit three hours. Open to sophomores and upperclassmen. Mr. BRIGGS. M W F 9. *Boardman 110.*

A survey of nationalism, internationalism, imperialism, and the racial, political, economic, and geographical factors in modern international relations.

[10. Contemporary Political Theory. First term. Credit three hours. Open to sophomores with the consent of the instructor, and to upperclassmen. Mr. WATKINS.

The nature and origins of contemporary political thought, with particular reference to the doctrines of liberalism, communism, and fascism. Not given in 1942-43.]

[11a. Comparative Constitutional Government. First term. Credit three hours. Open to sophomores with the consent of the instructor, and to upperclassmen. Prerequisite, credit for Government 2, or the consent of the instructor. Mr. WATKINS.

A comparative study of political institutions and processes, as exemplified in the liberal governments of contemporary Europe. Not given in 1942-43.]

[11b. Comparative Dictatorial Government. Second term. Credit three hours. Open to sophomores with the consent of the instructor, and to upperclassmen. Mr. WATKINS. A comparative study of political institutions and processes, as exemplified in the dictatorial governments of contemporary Europe. Not given in 1942-43.]

History of Modern Political Theory. (See Philosophy 10.) Mr. SABINE.

14. International Law. Throughout the year. Credit three hours a term. Open to qualified upperclassmen. Mr. BRIGGS. M W F 12. *Boardman 320.*

A systematic study of the nature, development, and judicial application of the principles of international law. Cases, readings, discussions.

16. Contemporary American Foreign Policy. Second term. Credit three hours. Open to sophomores and upperclassmen. Mr. BRIGGS. M W F 9. *Goldwin Smith B.*

Stress will be placed on the Far Eastern and Latin American policies of the United States in the light of European developments and the emergence of a global foreign policy for the United States.

20. Constitutional Law: The American Federal System. First term. Credit three hours. Open to upperclassmen. Prerequisite, course 1, course 2 or 3, or the consent of the instructor. Mr. CUSHMAN. T Th S 11. *Boardman 122.*

Judicial interpretation of the constitution: the nature of judicial review; separation of governmental powers; relations between state and national government; construction of national powers.

21. Constitutional Law: Fundamental Rights and Immunities. Second term. Credit three hours. Open to upperclassmen. Prerequisite. Government 20 or the consent of the instructor. Mr. CUSHMAN. T Th S 11. *Boardman* 122.

Privileges and immunities of citizenship; protection of civil and political rights; the obligation of contracts; due process of law and the equal protection of the law.

22. Seminary in Constitutional Problems. Throughout the year. Credit two hours a term. Open to graduate students and qualified seniors. Mr. CUSHMAN. T 2-4. *Boardman* 224.

24. Seminary in International Law and International Organization. Throughout the year. Credit two hours a term. Open to graduate students and qualified seniors. Mr. BRIGGS. Hours to be arranged.

Legal and Constitutional Aspects of Labor Problems and Social Insurance. (See Economics 46). Mr. MONTGOMERY.

28. American Political and Constitutional Theory. Second term. Credit two hours. Open to qualified seniors and graduates. Consult the instructor before registering. Mr. CUSHMAN. T Th 9. *Boardman* 320.

The philosophical background and evolution of American constitutional doctrines.

Local Government. (See Agricultural Economics 135. *Announcement of the College of Agriculture.*) First term. Credit three hours. Mr. ————. Lectures, W F 8. Warren 125. Laboratory, Th or F 1:40-4. Warren 101. Fee for materials furnished, \$2.

Historical development, organization, and operation of local government. Particular attention is given to the receipts, expenditures, and administration of counties, towns, and school districts in New York.

Problems in Financial Administration. (See Agricultural Economics 235. *Announcement of the College of Agriculture.*) First term. Credit three hours. Alternates with course 236. Primarily for graduate students. Mr. ————. Time and place to be arranged.

Attention is given to a number of problems in governmental financial administration with special reference to New York, including accounting systems, budgetary procedure, borrowing procedure, and debt and tax limits. Fee for materials furnished, \$2.

[Problems in Public Administration. (See Agricultural Economics 236. *Announcement of the College of Agriculture.*) First term. Credit three hours. Alternates with course 235. Primarily for graduate students. Mr. ————. Time and place to be arranged.

Attention is given to a number of problems in public administration with special reference to New York, including state and local planning, personnel administration, and administrative organization. Fee for materials furnished, \$2. Not given in 1942-43.]

Principles of Regional and City Planning. (See Architecture 710. *Announcement of the College of Architecture.*) First term. Credit three hours. Mr. CLARKE and Mr. MACKESEY.

May be counted as a related subject for the major in Government.

City Planning Practice. (See Architecture 711.) Second term. Credit three hours. Prerequisite, Architecture 710. Mr. CLARKE and Mr. MACKESEY.

May be counted as a related subject for the major in Government.

Regional Planning Practice. (See Architecture 712.) Second term. Credit three hours. Prerequisite, Architecture 710. Mr. MACKESEY.

May be counted as a related subject for the major in Government.

Housing. (See Architecture 713.) First term. Credit two hours. Prerequisite, Architecture 710. Mr. CLARKE and Mr. MACKESEY.

May be counted as a related subject for the major in Government.

Zoning. (See Architecture 717.) Second term. Credit two hours. Prerequisite, Architecture 710. Mr. MACKESEY. May be counted as a related subject for the major in Government.

Seminar in Regional and City Planning. (See Architecture 714.) Throughout the year. Credit one hour each term. Mr. CLARKE.

May be counted as a related subject for the major in Government.

Interdepartmental Seminars. See page 82.

HISTORY

For a major in History the following courses must be completed: (1) in History, at least thirty hours; (2) in related subjects, at least eighteen hours which shall be determined by the student in consultation with his adviser. Of the hours in related subjects, at least six shall be in unstarred courses.

1. **Outlines of Ancient History.** The Near Eastern Countries, Greece, and Rome to A.D. 337. Throughout the year. Credit three hours a term. First term prerequisite to second. Mr. LAISTNER. M W F 9. *Boardman* 322.
Textbook, lectures, and collateral reading.

3. **Greek History, 500 to 323 B. C.** First term. Credit three hours. Prerequisite, History 1 or the equivalent. Mr. LAISTNER. M W F 11. *Boardman* 321.

4. **The Hellenistic Age.** Second term. Credit three hours. Prerequisite, History 1 or 3 or a satisfactory equivalent. Mr. LAISTNER. M W F 11. *Boardman* 321.

[5. **The Roman Republic, 133 to 30 B. C.** First term. Credit three hours. Prerequisite, History 1 or a satisfactory equivalent. Mr. LAISTNER. M W F 11. *Boardman* 321. Not given in 1942-43.]

[6. **The Roman Empire, 30 B. C. to 180 A. D.** Second term. Credit three hours. Prerequisite, History 1 or 5. Mr. LAISTNER. M W F 11. *Boardman* 321. Not given in 1942-43.]

[7. **The History of Education (Greek, Roman, and Early Medieval).** First term. Credit two hours. For upperclassmen and graduates only. Mr. LAISTNER. T Th 10. *Boardman* 321. Not given in 1942-43.]

15. **Chinese History.** Throughout the year. Credit three hours a term. Not open to freshmen. Students must consult the instructor before registering for this course. Mr. BIGGERSTAFF. M W F 9. *Boardman* 321.

A study of the most significant Chinese cultural developments from earliest times to the present.

18a. **Modern History of the Far East: Nineteenth Century.** First term. Credit three hours. Mr. BIGGERSTAFF. M W F 12. *Boardman* 122.

A study of the political, social, and economic background of international relations in Eastern Asia.

18b. **Modern History of the Far East: Twentieth Century.** Second term. Credit three hours. Mr. BIGGERSTAFF. M W F 12. *Boardman* 122.

21. **Medieval History.** Throughout the year. Credit three hours a term. First term prerequisite to second. Mr. STEPHENSON. M W F 10. *Goldwin Smith A.* Quiz selections will normally take the place of the third hour. Fee for materials, 50 cents.

A general survey of Europe from the fourth to the fifteenth century. Lectures and discussion of text, with outside reading and map work.

[22. **The Rise of the Universities.** First term. Credit two hours. Mr. STEPHENSON. T Th 10. *Boardman* 226. Students must consult the instructor before registering for this course. Not given in 1942-43.]

A sketch of learning and education in western Europe from the ninth to the fourteenth century.

[23. **Social and Economic History of the Middle Ages.** Second term. Credit two hours. Mr. STEPHENSON. T Th 10. *Boardman* 226. Students must consult the instructor before registering for this course. Not given in 1942-43.]

An introduction to the agrarian economy of the Dark Age, the revival of commerce, and the consequent changes during the later medieval period.

24. **English Constitutional History to 1485.** Throughout the year. Credit two hours a term. Mr. STEPHENSON. T Th 10. *Boardman* 226. Students must consult the instructor before registering for this course.

The development of English institutions as revealed by the study of documentary sources. The course will begin with the Norman Conquest and will emphasize the emergence of parliamentary government.

42. **History of Modern Europe.** Throughout the year. Credit three hours a term. Not open to freshmen. Mr. DE KIEWIET. T Th 11 and an hour to be arranged. *Boardman* 322.

A survey of European history from the beginning of the 16th century to 1870. Political, economic, and intellectual movements emphasized in proportion to their international or European importance.

44. **France in the Seventeenth and Eighteenth Centuries.** Throughout the year. Credit three hours a term. Prerequisite, History 42 or the permission of the instructor. Mr. DE KIEWIET. M W F 11. *Boardman* 320.

50. **Recent European History.** Throughout the year. Credit three hours a term. Not open to freshmen. Mr. MOSELY. T Th S 9. *Boardman* 322.

A survey of the political and social development of Europe since 1870, with special attention to social and national movements as a background for international relations.

[51a. **History of Russia to 1796.** First term. Credit three hours. Prerequisite, History 42 or permission of the instructor. Mr. MOSELY. T Th S 11. *Boardman* 320. Not given in 1942-43.]

[51b. **History of Russia since 1796.** Second term. Credit three hours. Prerequisite, History 42 or permission of the instructor. Mr. MOSELY. T Th S 11. *Boardman* 320. Not given in 1942-43.]

52. **Modern History of the Balkans and Near East.** Second term. Credit three hours. Prerequisite, History 42 or permission of the instructor. Mr. MOSELY. T Th S 11. *Boardman* 320.

The decline of the Ottoman Empire; the social and political development of the Balkan and Near Eastern nationalities; the impact of imperialism.

53. **Modern History of the German People.** First term. Credit three hours. Prerequisite, History 42 or permission of the instructor. Mr. MOSELY. T Th S 11. *Boardman* 320.

61. **English History.** Throughout the year. Credit three hours a term. First term prerequisite to second. Mr. MARCHAM. T Th S 10. *Boardman* 110.

A survey of English history from the Anglo-Saxon invasions to the present.

[65. **English Constitutional History from 1485 to the present.** Throughout the year. Credit two hours a term. Prerequisite, History 24, or 61, or the consent of the instructor. Mr. MARCHAM. M W 2. *Boardman* 322. Not given in 1942-43.]

66a. **History of England under the Tudors.** First term. Credit three hours. Mr. MARCHAM. M W F 9. *Boardman* 110. Not open to freshmen. Prerequisite, History 61 or the consent of the instructor. A lecture course with readings in the literature of the time.

66b. **History of England under the Stuarts.** Second term. Credit three hours. Mr. MARCHAM. M W F 9. *Boardman* 110. Not open to freshmen. Prerequisite, History 61 or the consent of the instructor. A lecture course with readings in the literature of the time.

[67. **History of England in the 18th Century.** First term. Credit three hours. Mr. MARCHAM. M W F 10. *Boardman* 122. Not open to freshmen. Prerequisite, History 61 or the consent of the instructor. Not given in 1942-43.]

[68. **History of England in the 19th and 20th Centuries.** Throughout the year. Credit three hours a term. Mr. MARCHAM. M W F 10. *Boardman* 122. Not open to freshmen. Prerequisite, History 61 or the consent of the instructor. Not given in 1942-43.]

82(86). **American History, 1607-1850.** First term. Credit three hours. Not open to freshmen. Mr. GATES. M W F 9. *Goldwin Smith* A. Apply at *Boardman* 122 on registration day for seat assignment. Fee for materials, \$1.

83(87). **American History, 1850 to the present.** Second term. Credit three hours. Not open to freshmen. Mr. BRETZ. Section A, M W F 9. *Boardman* 122. Section B, T Th S 10. *Boardman* 322. Apply at *Boardman* 122 on registration day for seat assignment.

89. **American History, 1750-1848:** The Settlement of the Middle West. Second term. Credit two hours. Prerequisite, History 82, 83, 86, 87, or the equivalent. Upperclassmen only. Mr. BRETZ. T Th 9. *Boardman* 321. Apply at *Boardman* 122 on registration day for seat assignment.

91. **Recent American History.** First term. Credit three hours. Prerequisite, History 82, 83 or 86, 87 or the equivalent. Mr. GATES. M W F 12. *Boardman* 321.

[92. **American Colonial History.** First term. Credit three hours. Prerequisite, History 82-83, 86-87, or permission of the instructor. Mr. GATES. M W F 12. *Boardman* 321. Not given in 1942-43.]

[93. **Economic History of the United States.** Second term. Credit three hours. Prerequisite, History 82-83, 86-87, or permission of the instructor. Mr. GATES. M W F 12. *Boardman* 321. Not given in 1942-43.]

MATHEMATICS

For a major in Mathematics, the following courses must be completed: (1) in Mathematics, at least fifteen hours of unstarred courses; (2) in related subjects, at least fifteen hours to be selected from approved courses in Astronomy, Chemistry, Economics, Education, French, German, Italian, Philosophy, and Physics.

Students planning to teach Mathematics in secondary schools should make themselves familiar with the New York State requirements. They should bear in mind that the teaching of Mathematics is frequently combined with teaching of physical science or general science.

The Department of Mathematics recommends, as minimum preparation for teaching the subject, Mathematics 65a, 65b, and six additional hours selected from the following list: Mathematics 65c, 70, 130, 140, 200, 215, 310. Students planning to teach primarily Mathematics should meet the requirements for a major in the subject.

Examinations for the removal of conditions in courses 5, 10, 15, 50, 55, 60, 65 are held in September just before registration. For further information regarding the time and place of these examinations students should apply at White 223. No student may take more than one examination the same September.

Students wishing to take any of the courses numbered above 65 are invited to confer with the teachers concerning these courses.

Of courses 1 to 65, not more than six hours may be taken simultaneously without the special permission of the department.

***1. Elementary Concepts of Mathematics.** Throughout the year. Credit three hours each term. First term, M W F 8, T Th S 10. Second term, M W F 8.

This course is intended primarily for students who are not planning to continue the study of mathematics. Primary emphasis will be placed on the fundamental ideas common to all mathematics rather than on the technique of any one part of the subject. The student will be encouraged to apply the logical processes of mathematics to problems arising in every day experience. Extensive skill in the manipulation of mathematical symbols will not be emphasized. Although this course cannot be used as a prerequisite for courses in Analytic Geometry and Calculus, a student who has passed it with sufficiently high credit should have no difficulty in passing the qualifying examination in algebra for admission to Mathematics 65a.

***2. Cryptanalysis.** First term. Credit three hours. Mr. HURWITZ. M W F 10. White 111.

The study of the standard forms of ciphers and codes, and the methods used for their decipherment. Although no secret methods or very recent procedures of deciphering will be treated, the course should be useful to students who contemplate cryptographic employment (commissioned or civilian) in the naval or military service of the United States; opportunities for such employment may be available to women as well as men. There is no definite mathematical prerequisite; no student should take the course unless he has some facility at precise reasoning, as well as some natural feeling for the ways in which letters tend to combine to form words. With reference to future employment, acquaintance with one or more foreign languages may be helpful. Students who contemplate taking the course should previously consult the teacher.

***5. Solid Geometry.** Either term. Credit three hours except for students offering Solid Geometry for entrance. First term, M W F 8. Second term, M W F 10.

***10. College Algebra.** Either term. Credit three hours. M W F 9, T Th S 9.

***15. Plane Trigonometry.** Either term. Credit three hours except for students offering Trigonometry for entrance. First term, M W F 10, T Th S 8. Second term, M W F 8, T Th S 10.

***16. Spherical Trigonometry and Map Projections.** Either term. Credit three hours. First term, M W F 10. Second term, T Th S 10.

Designed primarily for students planning to enter war services.

[*20. Elementary Course in Higher Mathematics. Throughout the year. Credit three hours a term. Prerequisites, Mathematics 5, 15, or the equivalent. Not given in 1942-43.]

***30. Mathematics for Students of Economics and Statistics.** First term. Credit three hours. Mr. CURTISS. M W F 11. Warren Hall 140.

Some preliminary training in dealing with mathematical symbolism is first given. The student is then introduced to the concepts of the differential and integral calculus most frequently encountered in statistics and in mathematical treatments of the social sciences. There are no stated prerequisites for the course.

***50. Analytic Geometry and Calculus.** Open only to students in the College of Architecture. Throughout the year. Credit three hours a term. Prerequisites, the same as for Mathematics 65.

.55a, .55b. Analytic Geometry and Calculus. Primarily for students in the College of Engineering; the prerequisites for such students are Mathematics 15, and Mathematics 5 or 10, or the equivalent. For students in the College of Arts and Sciences the prerequisites for Mathematics 55a are the same as those stated below for Mathematics 65a.

***55a.** Daily except S. Credit five hours. Either term.

***55b.** Daily except S. Credit five hours. Either term.

*60a, *60b, *60c, 60d. **Analytic Geometry and Calculus.** Open only to students in the School of Chemical Engineering. Prerequisites, Mathematics 15, and Mathematics 5 or 10, or the equivalent.

*60a. First term only. Credit three hours.

*60b. Second term only. Credit three hours.

*60c. First term only. Credit three hours.

60d. Second term only. Credit three hours.

*65a, *65b, *65c. **Analytic Geometry and Calculus.** Primarily for students in the College of Arts and Sciences. Prerequisites, Mathematics 15 or its equivalent and a reasonable preparation in algebra to be shown either (a) by credit for Mathematics 10 or its equivalent, or (b) by passing satisfactorily an optional qualifying examination in elementary and intermediate algebra to be offered by the Department of Mathematics at the beginning of each term. A student who satisfies the prerequisite in either trigonometry or algebra will be permitted to take either Mathematics 10 or 15 simultaneously with Mathematics 65a. Some students may find their needs adequately covered by 65a and 65b; students interested in Mathematics or allied subjects will be expected to take 65a, 65b, and 65c.

*65a. Either term. Credit three hours. First term, M W F 11, T Th S 11; second term, M W F 11.

65b. Either term. Credit three hours. First term, M W F 11; second term, M W F 11, T Th S 11.

*65c. Either term. Credit three hours. M W F 11.

70. **Calculus.** Second term. Credit three hours. Prerequisite, Mathematics 65c or 55b. M W F 11.

The course will treat certain topics in advanced calculus, such as improper integrals, multiple integrals, line integrals, partial derivatives, and Taylor's theorem for functions of several variables. Special emphasis will be placed upon the physical applications.

90. **Teachers' Course.** Second term. Credit three hours. Prerequisite or parallel course, Mathematics 65b or the equivalent. Mr. JONES. M W F 10. *White 121.*

This course will treat certain selected topics in the mathematics taught in the secondary schools with a view to contribute to the enrichment of such teaching, and to give a clearer understanding of the meanings of certain of the concepts and processes involved.

133. **Determinants and Matrices.** First term. Credit three hours. Prerequisite, Mathematics 65b or the equivalent. Mr. JONES. T Th S 11. *White 121.*

A treatment of such topics as determinants, matrices, linear dependence, linear equations, and linear transformations.

142. **Analytic Theory of Numbers.** Second term. Credit three hours. Prerequisites, Mathematics 240 or 260. Mr. LEHNER. M W F 12. *White 211.*

The course will stress the great diversity of methods which can be applied to the solution of problems in the theory of numbers. Topics will be selected from the following: Bernoulli numbers and polynomials, prime number theorem, partitions, lattice-point problem, Goldbach's theorem. No knowledge of number theory is required.

160. **Groups, Rings, and Fields.** Second term. Credit three hours. Prerequisite, Mathematics 65b or the equivalent. Mr. FLEXNER. T Th S 11. *White 123.*

An elementary course dealing with the simpler theorems of group theory and their extension to rings and fields.

200. **Elementary Differential Equations.** Either term. Credit three hours. Prerequisite, Mathematics 65c or the equivalent. Mr. FICKEN, first term. M W F 9. *White 103.* Mr. HERZOG, second term. T Th S 11. *White 221.*

215. **Advanced Calculus.** Throughout the year. Credit three hours each term. Prerequisite, Mathematics 65c or the equivalent. Mr. RANDOLPH. M W F 11. *White 115.*

A careful study of limits, continuity, derivatives, and Riemann integrals. Functions of several variables. Multiple and line integrals. The course is designed to furnish necessary preparation for advanced work in analysis and applied mathematics.

221. **Measure and Integrals.** Second term. Credit three hours. Prerequisite, Mathematics 215 or the equivalent. Mr. KAC. T Th S 10. *White 211.*

Elements of Lebesgue's theory of measure and integration, Riemann-Stieltjes and Lebesgue-Stieltjes integrals. Applications to orthogonal series, functional equations and statistical independence.

260. Infinite Series. First term. Credit three hours. Prerequisite, Mathematics 65c. Mr. HURWITZ. M W F 12. *White 111.*

The classical theory of convergent infinite processes, with an introduction to the theory of summability.

310. Projective Geometry. Throughout the year. Credit three hours each term. Prerequisite, Mathematics 65b or the equivalent. Mr. CARVER. M W F 9. *White 101.*

A first course in projective geometry, including both synthetic and analytic methods.

361. Differential Geometry. First term. Credit three hours. Prerequisite, Mathematics 65c or the equivalent. Mr. WALKER. M W F 10. *White 103.*

The theory of curves and surfaces in Euclidean space of three dimensions, developed with the use of tensor calculus.

362. Riemannian Geometry. Second term. Credit three hours. Prerequisite, Mathematics 361. Mr. WALKER. M W F 10. *White 103.*

The theory of spaces with a metric defined by a definite or indefinite quadratic differential form. This course and Mathematics 361 will include an adequate treatment of tensor analysis.

400. Statistics. Throughout the year. Credit three hours each term. Prerequisite, Mathematics 30 or the equivalent. Mr. CURTISS. T Th S 10. *White 215.*

A study of the theory underlying modern statistical analysis, and of practical applications of this theory. The course is designed to furnish a background for the various courses in applied statistics given in other departments.

410. Numerical and Graphical Methods. First term. Credit three hours. Prerequisites, Mathematics 60d or 200 or the equivalent, or Mathematics 215. Mr. KAC. T Th S 10. *White 211.*

Graphs, scales and alignment charts; analytical approximations to empirical curves; interpolation and extrapolation; mechanical quadratures; numerical and graphical solutions of algebraic, transcendental, and differential equations. Applications to problems in chemistry, physics, and engineering will receive special attention.

470. Exterior Ballistics. First term. Prerequisite, a course in differential equations (such as 60d or 200) or the equivalent. Mr. ROSSER. M W F 8. *White 103.*

A survey of the general principles of the theory of exterior ballistics followed by consideration of special topics. Considerable emphasis will be laid on numerical aspects such as computation of trajectories, etc.

480. Partial Differential Equations of Mathematical Physics. Throughout the year. Credit three hours each term. Prerequisite, Mathematics 215. Mr. AGNEW. T Th S 9. *White 111.*

The derivation of the differential equations, with appropriate boundary conditions, which arise in certain problems of mathematical physics; the mathematical properties of solutions, and the physical meanings of these properties.

500. Problems, Research, and Informal Study. For properly qualified students, members of the department will direct reading and research not necessarily associated with any course.

The following courses are offered frequently, but not every year: Foundations of Mathematics, Modern Algebra, Algebraic Numbers, Theory of Equations, Linear Algebras, Symbolic Logic; Theory of Almost Periodic Functions, Integral Equations, Calculus of Variations, Real Functions, Complex Variables; Analytic Geometry of Space, Geometry of Hyperspace, Topology, Theory of Lattices, Non-Euclidean Geometry, Tensor Analysis, Algebraic Curves; Orthogonal Functions, Potential Functions, Mechanics, Hydrodynamics, Vector Analysis, Fourier Series, and Elasticity.

MUSIC

For a major in music, the following courses must be completed: (1) a minimum of twenty hours of advanced courses, the sequence of courses emphasizing either critical and historical work or theoretical and creative work; (2) in related subjects, a minimum of fifteen hours to be chosen with the approval of the adviser. Students who wish to major in music should consult Mr. Weaver at the beginning of their freshman year or as soon thereafter as possible.

The University furnishes coaches for several choral and instrumental ensembles, and invites all students who are interested to join these groups. Students should consult Mr. Margrave about the bands, and Mr. Kuypers about any of the other organizations.

Bands (R.O.T.C. and Symphonic.) Try-outs, Monday, Tuesday and Wednesday September 28, 29, and 30, 10 A.M. to 12:30 P.M. and 2 to 4 P.M., Barton Hall Band Room.

Chamber Music Ensembles. All interested in any type of chamber music work should consult Mr. Kuypers at his office in the Music Building, 320 Wait Avenue, during the first week of the term.

Cornell Chorus. Membership in this group is open to members of the two Glee Clubs and the Choir. Try-outs will be announced. Rehearsal schedule: Mondays and Wednesdays 4:30 to 5:30 in the rehearsal room of Morse Hall.

Men's Glee Club. Try-outs, Tuesday and Wednesday September 29 and 30, 7:30 P.M., in the rehearsal room of Willard Straight Hall. Rehearsal schedule: Wednesday and Friday evenings 7:30 to 9:30.

Orchestra. All interested in playing in an orchestra should report, with their instruments, at 7:30 P.M. on Wednesday evening October 7 at the rehearsal room on the ground floor of Morse Hall. Rehearsal schedule: Wednesday evenings 7:30 to 9:30 for full orchestra, and Thursday afternoons 4:30 to 5:30 for the string section.

Sage Chapel Choir. Try-outs, Monday and Tuesday September 28 and 29, 10 A.M. to 12 M. and 3 to 5 P.M. in Mr. Kuypers' office in the Music Building, 320 Wait Avenue. Rehearsal schedule: Thursday evenings 7:30 to 9 and Sunday mornings at 10 in the Sage Chapel.

Women's Glee Club. Try-outs, Wednesday September 30, 10 A.M. to 12 M. and 3 to 5 P.M. in Mr. Kuypers' office in the Music Building, 320 Wait Avenue. Rehearsal schedule: Tuesday afternoons 4:30 to 5:30 in the rehearsal room of Morse Hall.

A large collection of recorded music and scores is housed in the Music Building at 320 Wait Avenue, where a number of phonograph listening rooms are available. These facilities may be used by any member of the student body on week-days between 9 A.M. and 5 P.M. and between 7 and 10 P.M., and on Sundays between 1:30 and 4:30 P.M.

MUSIC THEORY

1. Theory I. Throughout the year. Credit three hours a term. Mr. GORE. M W F 10 and 12. Assignment to sections must be approved by Mr. GORE in advance of registration. 320 Wait Avenue.

An elementary course in the theory of music, with no prerequisites, open to all students irrespective of their background. The course is designed to develop facility in the hearing, reading, and writing of vocal and instrumental melody, and to afford the student a perspective of melodic styles from early times to the present day. This course is prerequisite to all other courses in the theory of music, and is recommended as a background for all other courses in music.

101. Theory II. Throughout the year. Credit three hours a term. Prerequisite, Music I or its equivalent. Mr. GORE. T Th S 12. 320 Wait Avenue.

This course is designed to develop facility in the hearing, reading, and writing of harmonic idioms, from the period of organum to the present day. Emphasis will be placed on keyboard harmony and on creative work.

[201. **Theory IIIa.** Credit two hours a term. Not offered in 1942-43.]

[203. **Theory IIIc.** Credit two hours a term. Not offered in 1942-43.]

303. Theory IVc. Throughout the year. Credit two hours a term. Prerequisite, Music 203 or its equivalent. Mr. HARRIS. Hours to be arranged. 320 Wait Avenue.

This course is designed to develop facility in the hearing, reading, and writing of florid, fugal, and polychordal counterpoint. Emphasis will be placed on creative work.

305. Theory IVe. Throughout the year. Credit two hours a term. Prerequisite, Music 201 and 203 or their equivalents. Mr. HARRIS. Hours to be arranged. 320 Wait Avenue.

This course is designed as a study of form and analysis and as a survey of materials. Ten major works, chosen from chamber, choral, orchestral, band, and operatic literature, will be discussed, analyzed, and reported on in essays of musical criticism. Score reading will be emphasized.

MUSIC APPRECIATION

11. The Art of Music. Throughout the year. Credit three hours a term. Open to sophomores and upperclassmen. Mr. WEAVER and Mr. HULL. M W F 11. Goldwin Smith A.

An approach to the rational understanding and enjoyment of the art of music, offered especially for students who have had no technical training in the subject. The first

term is given to a study of the smaller forms used in various types of vocal and instrumental music, especially as they are found in suites, operas, and oratorios. The second term is given to a study of larger forms used in vocal and instrumental music, especially as they are found in symphonic and choral music. Either term of this course may be taken without the other.

13. The Orchestra. First term, repeated in the second term. Credit two hours. Open to all students. Mr. HULL. T Th 2. 320 *Wait Avenue*.

This course is offered for students who have no technical background in music. It deals with the capacities and functions of the instruments of the orchestra, singly and in combination, with the orchestra as a whole, and with various types of music written for orchestra.

15. Instrumental Ensemble. Throughout the year. Credit three hours a term. Registration for this course must be approved by the instructor. Mr. KUYPERS. Hours to be arranged. 320 *Wait Avenue*.

An approach to the understanding of instrumental ensemble music, partly through performance of music, and partly through study of the music performed and of comparable music. The aim of the course is an appreciation of the art as intensified through performance itself. The course is open to all students who have attained a fair degree of proficiency in performance on some instrument. Either term of this course may be taken without the other.

17. Vocal Ensemble. Throughout the year. Credit three hours a term. Registration for this course must be approved by the instructor. Mr. KUYPERS.

An approach to the understanding of vocal ensemble music, partly through performance of music, and partly through a study of the music performed and comparable music. The aim of the course is an appreciation of the art as intensified through performance itself. The course is open to all students who have a reasonably good ear and good voice. Either term of this course may be taken without the other.

MUSIC HISTORY

21. History of Music. Throughout the year. Credit two hours a term. Open to sophomores and upperclassmen, and to freshmen by permission. Mr. WEAVER and Mr. HULL. T Th 11. *Goldwin Smith A.*

A survey of the evolution of the art of music, with especial reference to the development of musical styles from period to period, and to the position of music in the social and artistic life of nations. The first term covers the period from the beginning of the Christian era through the time of Bach and Handel (approximately 1750). The second term covers the period from then until the present day. Either term of this course may be taken without the other.

[121. **The Opera.** Credit three hours. Not offered in 1942-43.]

[122. **Organ Music.** Credit three hours. Not offered in 1942-43.]

[123. **Orchestral Music.** Credit three hours. Not offered in 1942-43.]

[124. **Chamber Music.** Credit three hours. Not offered in 1942-43.]

125. Piano Music. Second term. Credit three hours. Prerequisite, Music 21 or its equivalent. Mr. GORE. T Th S 10. 320 *Wait Avenue*.

A survey and study of the development of piano music from its beginnings to the present day.

126. Choral Music. First term. Credit three hours. Prerequisite, Music 21 or its equivalent. Mr. GORE. T Th S 10. 320 *Wait Avenue*.

A survey and study of the development of choral music from the Renaissance period to the present day.

[127. **String Music for Solo Instruments.** Credit three hours. Not offered in 1942-43.]

[221. **Bach.** Credit two hours. Not offered in 1942-43.]

[222. **Haydn and Mozart.** Credit two hours. Not offered in 1942-43.]

223. Beethoven. First term. Credit two hours. Prerequisites, at least one course from the group 121-127 and at least one year of Music Theory. Mr. WEAVER. T Th 9. 320 *Wait Avenue*.

A study of the life and works of Beethoven. Special topics will be assigned to each student, related to the field covered by his prerequisite courses.

[224. **Brahms.** Credit two hours. Not offered in 1942-43.]

[226. **Debussy.** Credit two hours. Not offered in 1942-43.]

228. **Modern European Composers.** Second term. Credit two hours. Prerequisites, at least one course from the group 121-127 and at least one year of Music Theory. Mr. WEAVER. T Th 9. 320 Wait Avenue.

A study of the works of the most significant modern European composers. Special topics will be assigned to each student, related to the field covered by his prerequisite courses.

[229. **Modern American Composers.** Credit two hours. Not offered in 1942-43.]

APPLIED MUSIC

401. **First Year. Individual instruction in voice, organ, piano, string, woodwind, and brass instruments.** Throughout the year. Credit two hours in the case of qualified students who are majoring in music; for other students, no credit. Mr. DUDLEY, Mr. GORE, Mrs. HARRIS, Mr. HULL, and Mr. MARGRAVE. Hours to be arranged. 320 Wait Avenue.

This course is offered primarily for students who are majoring in music, and for such students the work is correlated with other courses in music being taken. Whenever the facilities of the department permit, other students may take this work without credit. Permission to register, whether with or without credit, should be secured from Mr. WEAVER.

Individual instruction in organ is offered by Mr. GORE; in piano, by Mrs. HARRIS; in voice, by Mr. DUDLEY; in violin and viola, by Mr. HULL; in the other orchestral and band instruments, by Mr. MARGRAVE. Practice facilities are available in each case. Students should consult the instructor at the beginning of each term as to hours for instruction, and the secretary of the department as to hours for practice.

A fee of \$2 a half-hour is charged for this instruction, except in the case of vocal instruction, the fee for which is \$50 for the term. A fee of \$7.50 is charged for a daily one-hour assignment to a practice room equipped with piano. A term fee of \$30 is charged for a daily one-hour assignment for the use of a pipe organ in Bailey Hall or Sage Chapel.

402. **Second Year. Individual instruction.**

A continuation of Music 401, open to students who have completed that course. The credits, conditions, and regulations applying to Music 401 apply also to this course.

451. **Piano Master Class.** Mr. PETRI.

A limited number of advanced piano students will be accepted for this course. Those interested should consult Mr. WEAVER.

COURSES FOR GRADUATES

501. **Seminar in Composition.** Throughout the year. Credit two hours a term. Hours to be arranged. Mr. HARRIS.

A limited number of graduate students (and, by permission, seniors) will be admitted to this course who have (1) facility in the hearing, reading, and writing of melody, harmony, and counterpoint, (2) a working knowledge of the soprano, alto, tenor, and bass clefs, and (3) facility in score reading.

The work is intended to make the student acquainted with compositional practices in various styles, and to develop the student's creative abilities.

521. **Seminar in Musicology.** Throughout the year. Credit two hours a term. Hours to be arranged. Mr. KINKELDEY.

This course is primarily for graduates (and, by permission, seniors) who have (1) the requisite knowledge of one or more of the important foreign languages, (2) a fair knowledge of music theory, and (3) some skill in practical music.

The work is intended to make the student acquainted with the accomplishments of the past and with modern methods in all fields, scientific, aesthetic, and historical, of musical research and investigation. Special topics or fields of study will be selected for each term after consultation with the class.

PHILOSOPHY

For a major in Philosophy, the standard requirement is as follows: (1) in Philosophy, twenty-one hours, including courses 1b or 5 and one advanced course, all to be chosen with the approval of the student's adviser; (2) in related subjects, eighteen hours, to be chosen with the approval of the adviser. This requirement, however, will be diminished by six hours to allow for a final comprehensive examination, if the student elects to take such an examination. The courses thus to be omitted will be determined by the adviser. The major may emphasize aesthetics, social studies, history, logic, or religion. In each case an integrated program of studies must be selected, subject to the approval of the adviser.

Students registered in the combined Arts-Law course with a major in philosophy will be required to complete 12 hours in philosophy, including course 5, and 9 hours in related subjects.

Courses open to underclassmen:

[A. **Elementary Philosophy.** Throughout the year. Credit three hours a term. First term prerequisite to second term. Open only to underclassmen who have had neither 1a nor 2. Mr. ROBINSON. T Th S 9. *Goldwin Smith 227.*

This course combines logic with the study of some philosophical classics, including the *Republic*. The classics are studied so as to bring out not merely their content but also their form; and a textbook is used to supply logical conceptions. The course is equivalent to 1a and 2 together. Not given in 1942-43.]

*1a. **Philosophical Classics.** Either term. Credit three hours a term. Open to freshmen and sophomores. Registration in *Goldwin Smith 224.*

First term:

Sec. 1, T Th S 9. *Goldwin Smith 227.* Mr. —————.

Sec. 2, M W F 9. *Goldwin Smith 227.* Mr. ROBINSON.

Sec. 3, M W F 11. *Goldwin Smith 225.* Mr. BURTT.

Sec. 4, T Th S 10. *Goldwin Smith 225.* Mr. BROWN.

Second term:

Sec. 1, M W F 10. *Goldwin Smith 245.* Mr. SMART.

A careful study of Lucretius *On the Nature of Things*, Plato's *Republic*, and J. S. Mill *On Liberty*. In studying Plato and Mill, special attention is paid to the philosophy of democracy.

1b. **Philosophical Classics** (second course). Second term. Prerequisite, Philosophy 1a. Mr. ROBINSON. T Th S 9. *Goldwin Smith 227.*

Reading and discussion of somewhat more advanced texts than those used in Philosophy 1a, including Plato, Hume, and Descartes.

*2. **Logic.** Either term. Credit three hours. Registration in *Goldwin Smith 224.*

First term:

Sec. 1, M W F 12. *Goldwin Smith 242.* Mr. SMART.

Sec. 2, T Th S 10. *Goldwin Smith 245.* Mr. BROWN.

Second term:

Sec. 1, T Th S 10. *Goldwin Smith 234.* Mr. BROWN.

Sec. 2, T Th S 11. *Goldwin Smith 234.* Mr. WEDBERG.

Sec. 3, M W F 11. *Goldwin Smith 227.* Mr. BURTT.

Sec. 4, M W F 12. *Goldwin Smith 227.* Mr. SMART.

An elementary study of the laws of valid inference and the causes of fallacy.

Symbolic Logic. (See Mathematics 110). Mr. ROSSER.

3. **Problems in Philosophy.** Second term. Credit three hours. Open to sophomores, juniors, and seniors. Mr. CUNNINGHAM. T Th S 11. *Goldwin Smith 227.*

Fundamental problems of philosophy and the most important types of philosophical theory.

4. **Ethics.** Second term. Credit three hours. Open to sophomores, juniors, and seniors. Mr. ROBINSON. M W F 10. *Goldwin Smith 225.*

A study of theories of the good life, and of human nature as it bears on the good life.

5. **History of Philosophy.** Throughout the year. Credit three hours a term. Open to sophomores, juniors, and seniors. First term, Mr. SABINE; second term, Mr. CUNNINGHAM. T Th S 10. *Goldwin Smith A.*

Philosophical thought from its origin among the Greeks to the present time; the most important systems in their cultural context and their application to social, religious, and educational problems. First term: Greek and medieval philosophy. Second term: modern philosophy to the middle of the nineteenth century; a brief sketch of contemporary tendencies.

8a. **Aesthetics: Psychology of Art.** First term. Credit three hours. Open to sophomores, juniors, and seniors. Mr. OGDEN. M W F 11. *Goldwin Smith, Museum of Casts.* (See Psychology 8a).

[8b. **Aesthetics: Philosophy of Art.** Second term. Credit three hours. Prerequisite, three hours of philosophy. Mr. CHURCH. M W F 11. *Goldwin Smith* 128. Not given in 1942-43.]

An introduction to several modern theories of art. Emphasis is laid on the underlying principles of the aesthetic experience with particular reference to painting and sculpture.

COURSES FOR UPPERCLASSMEN AND GRADUATES

10. **Modern Political Theory.** Second term. Credit three hours. Open to juniors and seniors. Mr. SABINE. M W F 10. *Goldwin Smith* 221.

The theory of the national state and especially the development of the liberal tradition in the seventeenth and eighteenth centuries.

[**Contemporary Political Theory.** See Government 10. Not given in 1942-43.]

13. **The Philosophy of Religion.** Second term. Credit three hours. Open to juniors and seniors; to sophomores by special permission. Mr. BURTT. M W F 12. *Goldwin Smith* 225.

A study of the major types of religious belief in the modern world in relation to their philosophical background. Special attention is given to the interaction between religion and democratic ideals.

14. **History of Religions.** First term. Credit three hours. Open to juniors and seniors; to sophomores by special permission. Mr. BURTT. M W F 12. *Goldwin Smith* 128.

A general survey of the development of ritual, practice, and belief in religions of selected cultures.

15. **Philosophy of Science.** Throughout the year. Credit three hours a term. Open to juniors, seniors, and graduates. Mr. SMART. M W F 11. *Goldwin Smith* 221.

An historical study of the natural and social sciences in their relations with philosophy, and a discussion of some recent works on the philosophy of these sciences.

16. **Advanced Logic.** Throughout the year. Credit three hours a term. Open to graduate students and to upperclassmen by permission of the instructor. Mr. WEDBERG. Hours and place to be arranged.

Symbolic Logic. (See Mathematics 110.)

[19. **Advanced Readings in Aesthetics.** First and second terms. Credit three hours. Permission of the instructor. Mr. CHURCH. Hours by appointment. Not given in 1942-43.]

Readings to be selected in accordance with the interests and preparation of the student.

20. **Contemporary Philosophy.** Throughout the year. Credit three hours a term. Prerequisite, six hours in philosophy. Mr. BURTT. M W F 9, or hours to be arranged. *Goldwin Smith* 220. Not given in 1942-43.]

Main tendencies of contemporary philosophy, especially British and American.

23. **Philosophy of Religion—Advanced Course.** First term. Credit two hours. Open to graduate students and to undergraduates who have taken Philosophy 5 or Philosophy 13, on consultation with the instructor. Mr. BURTT. Th 2-4. *Goldwin Smith* 218.

A study of special topics in the field. The seminar method will be followed.

25. **Plato and Aristotle.** Throughout the year. Open to upperclassmen and graduates. Credit three hours a term. First term prerequisite to second. Mr. ROBINSON. T Th S 11. *Goldwin Smith* 220. Given in alternate years; given in 1942-43.

A philosophical study of the two greatest ancient thinkers, based on a reading of substantial parts of their works in translation.

28. **Ethical Theory.** First term. Mr. ROBINSON. M W F 10. *Goldwin Smith* 220.

A rapid reading of examples of the main types of modern ethical theory.

29. **The Philosophy of Value.** Second term. Mr. BROWN. M W F 10, or hours to be arranged. *Goldwin Smith* 220.

A study of Naturalist, Realist, and Idealist theories of value.

Interdepartmental Seminars. See page 82.

PHYSICAL EDUCATION

The following courses are designed primarily for the training of teachers and directors of physical education in public schools and colleges.

120. **History and Principles of Physical Education.** First term. Credit two hours. Mr. YOUNG. T Th 8. *Goldwin Smith* 124. For juniors and seniors.

Outstanding trends and contributions of physical education from the earliest times, together with the basis for physical education in our present society and its relation to general education.

121. Methods and Materials. First term. Credit three hours. Mr. YOUNG and Mr. GULLION. M W F 8. *Goldwin Smith* 124. For juniors and seniors.

The scope and aims of physical education and the technique in teaching the various activities involved in a comprehensive program.

122. Community Recreation. Second term. Credit two hours. Mr. YOUNG. T Th 8. *Goldwin Smith* 124.

A study of the function and development of a recreational program, together with the practical administration of the playground, community camp, and industrial recreation.

123. Organization, Administration, and Supervision. Second term. Credit three hours. Mr. YOUNG. M W F 8. *Goldwin Smith* 124. For juniors and seniors.

Problems involved in the general organization, administration, and supervision of (a) required physical education in secondary schools and colleges, (b) extra- and intra-mural activities.

Health Supervision of School Children. Second term. Credit three hours. Dr. GOULD. See Hygiene 3.

First Aid and Safety. First or second term. Credit one hour. Dr. SHOWACRE. See Hygiene 4.

127. Tests and Measurements. Second term. Credit three hours. Mr. YOUNG and Mr. GULLION. M W F 12. *Goldwin Smith* 134. For juniors and seniors.

A critical survey of modern trends in physical education tests and measurements with special attention to test construction and methods of using results.

133. American Red Cross Senior Course. Second term. No credit. Mr. LITTLE. M T W Th F 4:30, starting March 16. *Old Armory*. (For men only.)

134. The Teaching of Life Saving and Water Safety. Second term. No credit. Mr. LITTLE. Monday evenings, 8-10:30 throughout the term. *Old Armory*. Prerequisite, Senior American Red Cross certificate. (American Red Cross Instructors' Course.)

PHYSICS

For a major in Physics, the following courses must be completed: (1) in Physics, twenty-four hours of unstarred courses, which shall include at least three hours of Course 105, and nine hours selected from Courses 111 to 171; (2) in related subjects, Mathematics 200, and one of the following groups; Astronomy 187; Chemistry, twelve hours chosen with the approval of the major adviser; Philosophy 5 or 3 and 15; Psychology 1 and 3.

Examinations for those who were unavoidably absent from either term examination and for those who have conditions to make up in Courses 11 and 12 will be held on Friday, September 25, 1942 at 9 a.m. in Rockefeller A. Similar examinations in connection with Courses 21 to 62 will be held in Rockefeller A at 2 p.m. on the same day. A permit (Registrar's copy) to take such an examination should be presented at the time of the examination. Application for the permit should be made at the Dean's office of the student's college.

***3. Introductory Experimental Physics.** First term. Credit three hours. Demonstration lectures. M F 9 or 11. *Rockefeller A*. Mr. HOWE. One laboratory period a week, as arranged. *Rockefeller* 220. Laboratory fee, \$5. One recitation period a week, as arranged, required of students who do not offer entrance physics, but open to others. Messrs. HOWE, BACHER, BOCK, CONNELLY, CURTIN, HAZZARD, JONES, MEIJER, and RAUB.

Mechanics, properties of matter, sound, and heat.

***4. Introductory Experimental Physics.** Second term. Credit three hours. (See also course 6.) A continuation of course 3. Prerequisite, course 3 or entrance physics. Lectures, M F 9 or 11. Laboratory fee, \$5.

Electricity, magnetism, and light.

***6. Introductory Experimental Physics.** Second term. Credit four hours. Prerequisites, course 3 and the approval of the instructor. Registration limited. Demonstration lectures, M F 9 or 11, same as in course 4. Two recitations, T Th 10 or 11, or as arranged. Mr. GIBBS. One laboratory period, as arranged. Laboratory fee, \$5. Staff as in course 4.

A treatment of the topics of electricity, magnetism, and light more extended than that given in course 4.

***11. Introductory Experimental Physics.** First term. Credit four hours. Prerequisite, Calculus or simultaneous registration in Mathematics 55a, 60a or 65b. Entrance physics desirable but not required.

Lectures, Mr. GRANTHAM. T Th 10 or 12. *Rockefeller* A. Two recitations and one laboratory period a week to be arranged. Laboratory fee, \$5. Messrs. GRANTHAM, BEER, CARLSON, COOPER, DART, EHRLICH, EILERS, JOSSEM, KRUMHANS, KURSHAN, LANCE, MONROE, ODELL, OLINER, NEWHALL, PILSWORTH, STEPHENSON, and WARFIELD.

Demonstrations, theory, problems, and experiments covering the subjects of mechanics, wave motion, sound, and heat.

Courses 11 and 12 are required of students in Engineering.

***12. Introductory Experimental Physics.** Second term. Credit four hours. Prerequisite, same as in Physics 11. A continuation of Course 11. May be taken before Course 11. Laboratory fee, \$5.

Electricity, magnetism, and light.

21. General Physics. Either term. Credit three hours. Prerequisites, Physics 11 and 12 and Differential and Integral Calculus. Two classroom periods a week and one laboratory period on alternate weeks as assigned. Laboratory fee, \$2.50. Messrs. TOMBOULIAN, BOWERS, CALDWELL, GIVENS, HURWITZ, KENNARD, and MONTGOMERY.

Theory, problems, and laboratory work covering selected topics in electricity and magnetism. Required of candidates for the degree of B.M.E., B.E.E., and B.Chem.E.

22. General Physics. Either term. Credit three hours. Prerequisites, same as in Physics 21. A continuation of course 21. May be taken before course 21. Laboratory fee, \$2.50.

Theory, problems, and laboratory work covering selected topics in thermionics, photoelectric effect, light, and heat. Required of candidates for the degree of B.M.E., B.E.E., and B.Chem.E.

41. Modern Physics. First term. Credit two hours. Prerequisites, Physics 21 and 22. Mr. SMITH or Mr. TOMBOULIAN. T Th 10. *Rockefeller* 154.

Discussion and problems covering those aspects of sound, electrodynamics, electron optics, and kinetic theory of gases which are of importance in modern development engineering.

42. Special Topics in Modern Physics. Second term. Credit two hours. Prerequisites, Physics 21 and 22. Mr. SMITH or Mr. TOMBOULIAN. T Th 10. *Rockefeller* 154.

Discussion and problems covering those aspects of quantum theory, electrons in solids, thermionic emission, secondary emission, atomic structure and radiations, conduction of electricity in gases, and nuclear structure and radiations which are of special interest to the engineer.

55. Introductory Physical Experiments. Either term. Credit three hours. Prerequisites, Physics 3 and 4, or the equivalent. Mr. BARNES. Lecture, T 10 or W 11. Laboratory, T Th 2-4 or W F 2-4. *Rockefeller* 352. Laboratory fee, \$10.

One lecture and two laboratory periods a week. Fundamental experiments in properties of matter, heat, light, and electricity. Intended primarily for students preparing for Medicine or majoring in Biology.

60. Physical Experiments. Either term or throughout the year. Credit three hours a term. Prerequisites, Physics 3 and 4 and Mathematics 15 or their equivalents. Selected experiments available for those who have also had Mathematics 65a and 65b or the equivalent. Messrs. GIBBS, GREISEN, and TAPE. Six hours of laboratory work. Laboratory open T Th 8-1. Laboratory fee, each term \$10.

Laboratory work in mechanics, properties of matter, heat, light, and electricity. Experiments selected to meet the needs of the individual student, and designed to give an understanding of fundamental principles. Graphical methods of presenting results are emphasized. Primarily for students in Arts and Sciences. Suitable to accompany Physics 61 or 62 or both, but may be taken separately.

61. General Physics. First term. Credit three hours. Prerequisites, Physics 4 and Mathematics 15, or their equivalents. Messrs. GIBBS and TAPE. M W F 8. *Rockefeller* 107.

Primarily for students in Arts and Sciences. Classroom work covering electricity, magnetism, and light.

Physics 61 and 62 are designed to meet the needs of students who desire a somewhat detailed survey of the fundamentals of physics. Those planning to follow these courses with more advanced courses in physics should arrange to complete Mathematics 65b or

its equivalent not later than the term in which the first of these two courses is taken. A section in each of these courses for those without credit or concurrent registration in Mathematics 65b or its equivalent will be offered for not fewer than ten registrants. Physics 60 may suitably accompany either or both of these courses.

62. General Physics. Second term. Credit three hours. Prerequisites, Physics 3 and Mathematics 15, or their equivalents. Messrs. GIBBS and GREISEN. M W F 8. *Rockefeller* 107.

Primarily for students in Arts and Sciences. Classroom work covering mechanics, properties of matter, sound, and heat.

Course 62 may be taken before or after course 61.

105. Advanced Laboratory Practice. Either term or throughout the year. Credit three hours a term. Prerequisites, Physics 60 (6 hours), 61, and 62 and Mathematics 65, or their equivalents. Messrs. COLLINS and TRISCHKA. Laboratory open T W Th F afternoons. *Rockefeller* 301. Laboratory fee, each term, \$10.

For undergraduates. Two laboratory periods and one discussion period a week. Considerable time will be spent on each of a small number of experiments selected to meet the requirements of the individual student. The work may include such topics as electron measurements, ionization potentials, optics, spectroscopy, x-rays, radioactivity, photoelectric emission, alternating current measurements, electric oscillations, and high temperature measurements.

111. Analytical Mechanics. First term. Credit three hours. Prerequisites, Physics 60, 61, and 62, and (or in parallel) Mathematics 65c, or their equivalents. Mr. Rossi. T Th S 11.

Introductory analytical mechanics; material particles, systems of particles, and rigid bodies; oscillations.

[112. Properties of Matter. Second term. Credit three hours. Prerequisite, Physics 111, or its equivalent. Mr. MURDOCK. M W F 8. Given in alternate years, not in 1942-43.]

Gravitation, crystalline state, mechanics of deformable solids and fluids, surface phenomena, and diffusion.

121. Electricity and Magnetism. First term. Credit three hours. Prerequisites, Physics 60, 61, and 62, and (or in parallel) Mathematics 65c, or their equivalents. Mr. MURDOCK. T Th S 10.

Electrostatic, magnetostatic, and electromagnetic fields.

122. Electricity and Magnetism. Second term. Credit three hours. Prerequisite, Physics 121. Mr. MURDOCK. T Th S 10.

Metallic, electrolytic, and gaseous conduction; thermal and chemical electromotive forces; variable current phenomena; electromagnetic waves.

[132. Light. Second term. Credit three hours. Prerequisites, Physics 60 and 61, and Mathematics 65b, or their equivalents. Mr. HOWE. T Th S 8. Given in alternate years, not in 1942-43.]

An introductory study of lens systems, diffraction, interference, double refraction, and polarization.

142. Heat. Second term. Credit three hours. Prerequisites, Physics 60 and 62, and (or in parallel) Mathematics 65c, or their equivalents. Mr. Rossi. T Th S 9. Given in alternate years.

Temperature scales, specific heats, thermal conductivity, thermodynamics, thermal radiation, high temperature measurements, and kinetic theory.

162. Wave Motion and Sound. Second term. Credit three hours. Prerequisite, Physics 111, or the equivalent. Mr. COLLINS. M W F 8. Given in alternate years.

Properties of deformable media, the general properties of wave motion; a comparative study of elastic waves, waves on the surfaces of liquids, and sound waves; a detailed study of sound phenomena.

171. Modern Topics in Physics. First term. Credit three hours. Prerequisites, Physics 60, 61, and 62, and (or in parallel) Mathematics 65c, or their equivalents. Mr. — and other members of the staff. M W F 12.

Relativity, wave mechanics, optical spectra, x-rays, and nuclear physics. In each of these fields a particularly qualified member of the staff gives part of the work.

200. Introduction to Theoretical Physics. Throughout the year. Credit five hours a term. This course must be preceded by Physics 111 and (or in parallel) Physics 121, or

their equivalents. Lectures, first term, Mr. BETHE or Mr. KENNARD. Second term: Mr. KENNARD or Mr. ROSSI. T Th S 11. Two hours of informal study. Mr. PLACZEK. See Graduate School Announcement.

[223. **Theory of Electric Waves.** First term. Credit three hours. Prerequisite, Physics 200 or its equivalent. Mr. BETHE. M W F 9. Given in alternate years; not in 1942-43. See Graduate School Announcement.]

223. **Theoretical Optics.** First term. Credit three hours. Prerequisite, Physics 200 or the equivalent. Mr. COLLINS. M W F 8. Given in alternate years. See Graduate School Announcement.

[254. **Kinetic Theory and Statistical Mechanics.** Second term. Prerequisite, relevant parts of Physics 200. Mr. KENNARD. W F 8. Given in alternate years, not in 1942-43. See Graduate School Announcement.]

271. **Introductory Quantum Mechanics.** First term. Credit three hours. Prerequisite, Physics 200. Mr. BETHE. M W F 9. See Graduate School Announcement.

272. **Quantum Mechanics.** Second term. Credit three hours. Prerequisite, Physics 271. Mr. BETHE. M W F 9. See Graduate School Announcement.

300. **Advanced Laboratory.** Either term or throughout the year. Credit three hours a term. Prerequisite, Physics 105 or the equivalent. Messrs. COLLINS and TRISCHKA. Laboratory open T W Th F afternoons. *Rockefeller* 301. Laboratory fee each term, \$10. See Graduate School Announcement.

315. **Special Topics in Physics.** See Graduate School Announcement.

320. **Special Topics Laboratory.** Either term. Credit two hours a term. Prerequisite, Physics 105 or the equivalent, and the consent of the instructor. See Graduate School Announcement.

[405. **Mathematical Methods in Physics.** Throughout the year. Credit three hours a term. Prerequisite, Mathematics 65c, or the equivalent, and at least two years of general physics. Mr. SMITH. Given in alternate years, not in 1942-43. See Graduate School Announcement.]

[452. **Hydrodynamics and Aerodynamics.** Second term. Credit three hours. Prerequisite, Physics 111 or its equivalent and a working knowledge of differential equations. Mr. BETHE. M W F 12. Given in alternate years, not in 1942-43. See Graduate School Announcement.]

[472. **Quantum Theory of Spectra.** Second term. Not given in 1942-43. See Graduate School Announcement.]

476. **Quantum Mechanics of Solids.** Second term. Credit three hours. Prerequisite, Physics 271. Mr. BETHE. T Th S 10. Given in alternate years. See Graduate School Announcement.

[477. **Quantum Theory of Collisions.** First term. Not given in 1942-43. See Graduate School Announcement.]

[478. **Quantum Theory of Nuclei.** Second term. Not given in 1942-43. See Graduate School Announcement.]

[481. **Advanced Quantum Mechanics.** First term. Not given in 1942-43. See Graduate School Announcement.]

571. **Atomic Spectroscopy.** First term. Credit three hours a term. Open to qualified students by permission. Mr. GIBBS. Given in alternate years. M W F 12. See Graduate School Announcement.

572. **Molecular Spectroscopy.** Second term. Credit three hours. Prerequisite, Physics 571 or special permission. Mr. SHAW. Given in alternate years. M W F 12. See Graduate School Announcement.

[597. **X-Ray and Electron Diffraction.** First term. Credit three hours. Prerequisites, Physics 122, and 132, or their equivalents. Mr. MURDOCK. Given in alternate years, not in 1942-43. See Graduate School Announcement.]

[598. **X-Rays.** Second term. Credit three hours. Open to qualified students by permission. Mr. PARRATT. T Th S 10. Given in alternate years; not in 1942-43. See Graduate School Announcement.]

641. **Advanced Electronics and Ultra High Frequencies.** First term. Credit three hours. Prerequisite, Mathematics 200, Physics 122 or 41, and (or in parallel) Physics 320dd or their equivalents. Mr. SMITH. Given in alternate years. See Graduate School Announcement.

642. **Advanced Electronics and Ultra High Frequencies.** Second term. Credit three hours. Prerequisites, Physics 320d and 641. Mr. SMITH. Laboratory fee, \$15. Given in alternate years. See Graduate School Announcement.

711. **Nuclear Physics.** First term. Credit three hours. Prerequisite, Physics 271. Messrs. HOLLOWAY, BETHE, and PLACZEK. M W F 11. Given in alternate years. See Graduate School Announcement.

[751. **Cosmic Rays.** First term. Credit two hours. Prerequisite, a course in quantum theory or registration in Physics 271. Mr. ROSSI. M W 10. Given in alternate years; not in 1942-43. See Graduate School Announcement.]

PSYCHOLOGY

For a major in psychology, the following courses must be completed: (1) in Psychology, twenty-four hours including courses 1 and 3; (2) in related subjects, fifteen hours to be selected in consultation with the adviser from courses in Biology, Chemistry, Mathematics, Music, Philosophy, Physics, and Social Science.

Students who wish to take course 1 or 2, should go, on one of the registration days, to Morrill Hall, north entrance, third floor, for assignment to sections.

1. **Elementary Psychology.** Section 1. Repeated in second term. Credit three hours. Not open to freshmen. Mr. DALLENBACH and assistants. Lectures, *Goldwin Smith C.* M W 12. Recitations, one hour a week to be arranged. Section 2. First term. Credit three hours. Not open to freshmen. Mr. DALLENBACH and assistants. Lectures, *Goldwin Smith C.* T Th 11. Recitations, one hour a week to be arranged.

See also Rural Education 110. **Psychology: An Introductory Course.** First or second term. Credit three hours. Not open to freshmen. M W F 10. *Goldwin Smith C.* Mr. WINSOR. Fee \$1.

Either Psychology 1 or Rural Education 110 is prerequisite for all later courses in psychology. Each deals with the basic problems and principles of human psychology and is designed as a general foundation for the study of experimental, social, animal, and child psychology, for psychotechnology, and for the psychology of the abnormal. Class demonstrations will supplement the lectures.

1a. **Laboratory.** Repeated in second term. Credit one hour. To be taken in conjunction with course 1. Mr. DALLENBACH and assistants. *Morrill*, Psychological Laboratory. T 2-4.

The course is designed as an experimental supplement to the introductory course and the experiments will be in the field covered by the lectures and readings of each week. Not more than 25 students will be admitted.

2. **The Special Psychologies.** Second term. Credit three hours. Prerequisite, Psychology 1. Mr. WELD and assistants. Lectures, T Th 11. *Goldwin Smith C.* Recitations, one hour a week, to be arranged.

A survey of the fields of differential, abnormal, animal, applied, genetic, and social psychology.

3. **Introductory Laboratory.** Either term. Credit three hours. Prerequisite, Psychology 1. Mr. KREEZER and assistants. M W F 2-4. *Morrill*, Psychological Laboratory. Laboratory fee, \$2.

This course is required for all further laboratory work in psychology. It provides elementary training in the methods of experimentation. A representative series of experiments drawn from the field of psychology will be performed by every student.

[4. **Intermediate Course in Psychology.** First term. Credit three hours. Prerequisite, Psychology 1 and the consent of the instructor. Mr. WELD. M W F 9. *Morrill* 306.

Intended for students who wish to continue the study of psychology at a more advanced level of presentation. Lectures, textbook assignments, and demonstrations. Not given in 1942-43.]

5. **Perception.** First term. Credit three hours. Prerequisite, Psychology 1 and consent of the instructor. Mr. WELD. M W F 9. *Morrill* 306.

The place of perception in psychology and its relation to every-day living. A review of the important experiments with special emphasis upon recent developments and upon modern theories of perception.

6. **Memory and Thinking.** Second term. Credit three hours. Prerequisite, Psychology 1 and consent of the instructor. Mr. WHITE. M W F 9. *Morrill* 306.

Rote and logical memory, factors influencing memory; relationships between language

and thought; repression, wishful thinking, artistic thinking, group thinking, creative thinking, and critical scientific thinking.

7. Animal Psychology. First term. Credit three hours. Prerequisite, Psychology 1. Mr. KREEZER. M W 10 and a laboratory period to be arranged. *Morrill 340.*

A study of the behavior and the psychological capacities of animal forms. Emphasis will be placed on the relation of research in this field to problems of human psychology: motivation, sensory and perceptual discrimination, learning, problem-solving, adjustment to frustration, and development of behavior. The laboratory period is designed to give the student a direct acquaintance with representative methods for investigating these phenomena.

8a. Aesthetics: Psychology of Art. First term. Credit three hours. Open to sophomores, juniors, and seniors. Mr. OGDEN. M W F 11. *Goldwin Smith, Museum of Casts.*

A study of the aesthetic experience as criterion of art and skill. Special consideration will be given to the underlying principles of music, poetry, and the visual arts. Designed for students interested in the fine arts as well as for those interested in the philosophical theory of values.

[9. Personality. First term. Credit three hours. Designed especially for upperclassmen who are preparing for social work or clinical psychology. Mr. WHITE.

The basic motivations of the human personality; its analysis and measurement; its mechanisms of adjustment to a social environment. Not given in 1942-43. For a new course covering essentially the same ground, see INTERDEPARTMENTAL COURSES, p. 83.]

[10. Social Psychology. Second term. Credit three hours. Prerequisite, junior standing and consent of the instructor. Primarily for those whose main interest is in history, government, economics, or sociology. Mr. WHITE.

A psychological study of public opinion and the behavior of crowds; war, nationalism, race prejudice, class conflict, etc. Not given in 1942-43. For a new course covering essentially the same ground, see INTERDEPARTMENTAL COURSES, p. 83.]

11. Physiological Psychology of the Senses. First term. Credit three hours. Prerequisite, Psychology 1. Mr. DALLENBACH. M W F 11. *Morrill 306.*

Lectures and demonstrations on the experimental psychology of the special senses together with a study of the nervous structures involved.

12. Legal Psychology. Second term. Credit three hours. Prerequisite, Psychology 1. Intended for upperclassmen preparing for law. Mr. WELD. M W F 11. *Morrill 340.*

Psychological aspects of the origin and growth of the law, and of legal theory; psychological problems of evidence and responsibility.

[13. History of Experimental Psychology. First term. Credit three hours. Prerequisite, senior standing and consent of the instructor. Mr. WELD. T Th S 11. *Morrill 306.* Not given in 1942-43.]

14. Contemporary Psychology. First term. Credit three hours. Prerequisite, upper-class standing and consent of the instructor. Mr. WELD. T Th S 11. Seminary Room, *Morrill.*

A comparative study of current psychological theory; existential psychology, behaviorism, Gestalt psychology, psychoanalysis, and hormic psychology.

15. Psychology of the Abnormal. Second term. Credit three hours. Prerequisite, Psychology 1, upperclass standing, and consent of the instructor. Mr. KREEZER. M W F 10. *Morrill 340.*

A survey of the psychological disorders and deficiencies: maladjustments of normal children and adults; mental deficiency; hysteria, neurasthenia, and psychasthenia; schizophrenia, manic-depressive psychosis, and organic psychoses. A consideration of psychological, physiological, and genetic factors.

19. Minor Research Problems. Either term or throughout the year. Credit three hours a term. Prerequisite, Psychology 1, 3 and special courses required by instructor. Messrs. WELD, DALLENBACH, KREEZER, WHITE, and RYAN. Hours to be arranged. *Morrill, Psychological Laboratory.*

Research or informal study in general, abnormal, animal, applied, physiological, and social psychology. The course is designed for students majoring in psychology who are prepared to undertake original investigation.

[20. The Correlational and the Psychophysical Methods. Second term. Credit three hours. Prerequisite, Psychology 3. Mr. DALLENBACH. M W F 2-4. *Morrill, Psychological Laboratory.* Not given in 1942-43.]

[22. **Genetic Psychology.** Second term. Credit three hours. Prerequisite, Psychology 1, upperclass standing, and consent of the instructor. Mr. KREEZER. M W F 10. *Morrill* 303.

A study of the individual life-career and the development of the psychological functions. Lectures and textbook assignments. Not given in 1942-43.]

[116. **Reading of German Psychology.** Second term. Credit three hours. Prerequisite, consent of the instructor. Hours to be arranged. Mr. KREEZER. *Morrill*, Psychological Laboratory.

The accurate reading and translation of psychological texts and articles. The course presupposes a knowledge of grammar. Not given in 1942-43.]

121. **Technique of Experimentation.** Second term. Credit three hours. Primarily for graduate students. Hours to be arranged. Mr. DALLENBACH. *Morrill*, Psychological Laboratory.

122. **Research Methods in Social Psychology.** Throughout the year. Credit two hours a term. (First semester may be elected separately.) Prerequisite, permission of the instructor. Mr. WHITE. T 2-4; reading and field work. *Morrill*, Seminar Room.

Primarily a training course, with emphasis on actual research and field experience; individual and group projects. In 1942-43 the work will center around wartime problems: public opinion sampling, case-study analysis as related to attitude-formation, experimental work on factors related to national morale, etc.

A study of the principles and processes of psychological research.

129. **Seminar in Psychology.** Second term. Credit three hours. Primarily for graduate students. Hours to be arranged. Messrs. WELD and DALLENBACH. *Morrill*, Seminary Room.

PSYCHOBIOLOGY

In the courses listed below students are given the opportunity to observe and to participate in the psychosomatic investigations in progress at the Cornell Behavior Farm.

30. **Experimental Psychophysiology.** First term. Repeated in the second term. Credit three hours. Prerequisite, Psychology 1. Mr. ANDERSON. Laboratory, T Th 1:40-4. Lecture hour to be arranged. *Morrill* 301. Fee, \$5.

Laboratory observations and lectures upon the principal physiological mechanisms of behavior in man and in lower animals. The interrelationship between physiological and mental processes is emphasized. The effects of the emotions upon the nerve muscle, cardiovascular, respiratory, and digestive systems and the influence of the vitamins, metabolism, and the endocrine glands upon personality and behavior are studied in detail.

Of special value to pre-medical students and those preparing to become nurses, technicians, or clinical psychologists.

30a. **Psychosomatic Problems and Theory.** First term. Credit three hours. Prerequisite, Psychology 1. Mr. LIDDELL. W 2-4, one hour to be arranged. *Morrill*, Seminary Room.

Recent advances in the investigation of the interrelationship of mind and body. Discussions and occasional demonstrations at the Cornell Behavior Farm. This course is intended to supplement 30, although students who have completed Psychology 1 may elect it with consent of the instructor.

31. **Endocrinology and Behavior.** First term. Credit three hours. Prerequisite, Psychology 1. Mr. ANDERSON. M W F 9. *Morrill* 303.

The endocrine glands and involuntary nervous system in relation to behavior. The influence of the internal secretions upon the personality and behavior of the individual. Informal discussion, selected readings, and demonstrations.

132. **Animal Behavior in Experimental Medicine.** Second term. Credit three hours. Mr. LIDDELL. W 2-4, one hour to be arranged. *Morrill*, Seminary Room.

A review of recent experimental studies of the adjustment of the animal to its environment with particular reference to the conditioning of the various physiological functions. Consideration will be given to the limits of psychobiological adjustment in animals and man. The bearing of animal conditioning on the problem of war neuroses will be stressed. The class will participate in conditioned reflex experiments at the Cornell Behavior Farm.

133. **Informal Study and Research in Psychobiology.** Throughout the year. Hours to be arranged. Messrs. LIDDELL and ANDERSON. *Cornell Behavior Farm*.

Students may participate in the investigations in progress at the Cornell Behavior Farm.

EDUCATIONAL PSYCHOLOGY

Educational Psychology. (Education 100, formerly Education 1. See *Announcement of the School of Education*.) Either term. Credit three hours. Prerequisite for prospective teachers, Human Growth and Development. Other qualified students may be admitted on consent of the instructor. Mr. FREEMAN. First term, M W F 11. Second term, M W F 10. *Goldwin Smith 234.*

This course is counted among the 30 hours allowed outside the College of Arts and Sciences.

The major facts and principles of psychology bearing on educational practice and theory.

Mental Measurements. (Education 7). First term. Credit three hours. Prerequisite, a course in general or educational psychology, or Human Growth and Development. Mr. FREEMAN. T Th S 9. *Goldwin Smith 234.*

Development of individual and group tests of intelligence and personality; principles underlying their construction and use; their use in schools, psychological clinics, and in other fields. The nature of mental abilities. The use of educational tests. Demonstrations in administering and interpreting tests.

Experimental Educational Psychology. (Education 8). Either term. Credit and hours to be arranged. Consent of the instructor is required. Education 7 or its equivalent should precede this course. Mr. FREEMAN.

The application of psychological and statistical methods to problems in education.

Individual Differences. (Education 18). Second term. Credit three hours. Prerequisite, a course in general or educational psychology, or Human Growth and Development. Mr. FREEMAN. M W 2-3:15. *Goldwin Smith 236.*

The nature, causes, and implications of individual differences in abilities and behavior. Study and observations of atypical groups. Not given in 1942-43.]

Seminar in Human Development and Behavior. (Education 20). First term. Credit two hours. Primarily for graduate students in Education. Seniors may be admitted with permission of the instructor. Mr. FREEMAN. Th 4-6. *Goldwin Smith 248.*

Recent materials and theories. Educational implications.

APPLIED PSYCHOLOGY

50. Psychology of Inefficiency. First term. Credit three hours. Prerequisite, Psychology 1. Mr. RYAN. T Th S 10. *Goldwin Smith C.*

A survey of the external and internal factors which affect the efficiency, speed, and accuracy of human work. Consideration will be given to sedentary or 'mental' work as well as to physical work, in relation to fatigue, monotony, rest, sleep, and the effects of noise, light, temperature, narcotics, incentives, and social factors.

51. Psychotechnology in Business and Industry. Second term. Credit three hours. Prerequisite, Psychology 1 and junior standing. Mr. RYAN. T Th S 10. *Goldwin Smith C.* Fee, \$1.

A study of experimental and statistical analyses of psychological problems in vocational selection, industrial production, personnel, advertising, selling, and market research.

Personnel Administration. (Hotel Administration 119). Second term. Credit three hours. Prerequisite, Psychology 1. Mr. WINSOR. M W F 8. *Plant Science 233.*

Military Personnel Administration (Hotel Administration 115). First term. Credit two hours. Juniors and seniors preparing for service, as officers in the armed forces. Mr. WINSOR. T Th 10. *Warren 125.*

A discussion of basic psychological and personnel problems and techniques incident to the selection, training, motivation, and disciplining of men under war conditions. As far as possible, actual cases and situations will be presented for analysis and discussion. This course is counted among the thirty hours allowed outside the College of Arts and Sciences.

Seminar in Personnel Administration. (Hotel Administration 219). Second term. Credit two hours. Prerequisite, course 119. Open to qualified seniors and graduate students. Mr. WINSOR. Th 4:15-6. *East Roberts 223.*

Nationalism. An interdepartmental seminar. See page 83.

ROMANCE LANGUAGES

For a major in French, the following courses must be completed: (1) in French, twenty-one hours of unstarred courses; (2) in related subjects, eighteen hours to be selected from courses in English, History of Art, German, Greek, Ancient and European History, Italian, Latin, Music 21, Philosophy 5, 8, 19, Portuguese, Russian, and Spanish.

For a major in Spanish, the following courses must be completed: (1) in Spanish, twenty-one hours of unstarred courses; (2) in related subjects, eighteen hours to be selected from courses in English, History of Art, French, German, Greek, Ancient and European History, Italian, Latin, Music 21, Philosophy 5, 8, 19, Portuguese, and Russian.

For a major in French and Italian, Spanish and Italian, French and Spanish, Spanish and French, the following courses must be completed: (1) in the first language of each pair, fifteen hours of unstarred courses, and in the second language, nine hours of unstarred courses; (2) in related subjects, eighteen hours to be selected from courses in English, History of Art, German, Greek, Ancient and European History, Latin, Music 21, Philosophy 5, 8, 19, Portuguese, Russian, and the Romance language not included in the major.

FRENCH

Students desiring the recommendation of the Department for teaching French are required to take the following courses: 7, 9 (one term), 16, 22, 23, 30.

Students planning to teach French in the secondary schools will find it useful to prepare a second subject of specialization. Latin is particularly recommended. French may be combined with Latin in a course which will fulfill the New York State requirements for teachers of those subjects. The announcement of the Department of Classics and members of the two departments should be consulted.

*1. **First Course for Beginners.** Throughout the year. Credit three hours a term. M W F 12, T Th S 9.

Students with first-year entrance French should enter the course the second term.

*1g. **First Course for Graduate Students.** Throughout the year. T Th S 8, or another hour at the convenience of the class. The emphasis is chiefly on the attainment of a reading knowledge of French.

*3a. **Second Course.** Throughout the year. Credit three hours a term. Prerequisite, French 1, or second year entrance French. M W F 10, 11, T Th S 9.

*4a. **Reading of French.** Repeated in second term. Credit three hours. Prerequisite, French 3a, or third year entrance French. First term: M W F 9, 12. Second term: M W F 10, 12.

Translation and rapid reading.

For the satisfaction of the Prescribed Subjects, must be taken with or subsequent to French 5a. Courses 4a and 5a together are roughly equivalent to course 6.

4b. **Reading of French.** Second term. Credit two hours. Prerequisite, French 4a, or fourth year entrance French. T Th 11.

Designed to inculcate an extensive and exact reading knowledge of the language.

*5a. **Written and Spoken French.** Repeated in second term. Credit three hours. Prerequisite, French 3a, or third year entrance French. First term: M W F 11, T Th S 9. Second term: M W F 9, T Th S 10.

5b. **Written and Spoken French.** Repeated in second term. Credit three hours. Prerequisite, fourth year entrance French, or French 5a or 6. First term: M W F 9, T Th S 10. Second term: T Th S 9, 10.

5c. **Written and Spoken French.** Second term. Credit three hours. Prerequisite, French 5b. T Th S 10.

*6. **Freshman French: Reading and Composition.** Throughout the year. Credit three hours a term. Prerequisite, French 3a, or third year entrance French. Designed primarily for the satisfaction of the Prescribed Subjects in foreign languages. M W F 8, 9, 10, 11, 12; T Th S 9, 10.

7. **Written and Spoken French.** Throughout the year. Credit three hours a term. Prerequisite, French 5b. Mr. THOMAS. M W F 12; T Th S 9. *Goldwin Smith 277.*

Composition, conversation, and discussion of selected topics in French grammar. The course is conducted in French.

9. **Written and Spoken French.** Throughout the year. Credit three hours a term. Prerequisite, French 7. Mr. THOMAS. M W F 10. *Goldwin Smith 281.*

Rapid translation from English; themes and talks by students on literary and historical topics. The course is conducted in French.

[10. **French Civilization.** Second term. Credit two hours. Prerequisite, three years of entrance French or its equivalent. Open to Freshmen. Not accepted in fulfillment of the Prescribed Subjects. T Th 11.

Lectures in English, translation, and outside reading in French, on the general aspects of French civilization. Not given in 1942-43.]

16. **History of French Literature.** Throughout the year. Credit three hours a term. Prerequisite, fourth year entrance French, French 4a, or French 6. Mr. MASON, M W F 11. *Goldwin Smith B.*

Lectures on French literature since the Middle Ages.

[17. **Literature of the Seventeenth Century.** Throughout the year. Credit three hours a term. Prerequisite, French 16. Mr. BISHOP. M W F 11. *Goldwin Smith 281.*

Lectures and outside reading. This course is conducted in French.

18. **Literature of the Eighteenth Century.** Throughout the year. Credit three hours a term. Prerequisite, French 16. Mr. BISHOP. M W F 11. *Goldwin Smith 281.*

Lectures and outside reading. This course is conducted in French.

19. **The Romantic Movement in French Literature.** Throughout the year. Credit three hours a term. Prerequisite, French 16. Mr. MASON. M W F 9. *Goldwin Smith 290.*

[20. **Modern French Literature.** Throughout the year. Credit three hours a term. Prerequisite, French 16. Mr. MASON. M W F 9. *Goldwin Smith 290.* Not given in 1942-43.]

[21. **Contemporary French Literature.** Throughout the year. Credit three hours a term. Prerequisite, French 16. Mr. MASON. M W F 9. *Goldwin Smith 290.* Not given in 1942-43.]

22. **French Phonetics.** Second term. Credit two hours. Mr. MASON. W F 8. *Goldwin Smith 290.*

[23. **French Historical Grammar.** First term. Credit two hours. Prerequisite, one year of Latin. Mr. PUMPELLY. T Th 10. *Goldwin Smith 283.* Not given in 1942-43.]

Lectures on the historical development of French from its origins to the present. Primarily for students intending to teach French.

24. **French Philology.** Throughout the year. Credit three hours a term. Prerequisite, French 5a, 23, and entrance Latin. Mr. PUMPELLY. T 11, Th 2. *Goldwin Smith 283.*

Lectures on the historical development of the French language, with a detailed phonological and morphological study of the *Chanson de Roland*.

30. **French for Teachers.** First term. Credit three hours. Mr. RIDEOUT. T Th S 9. *Goldwin Smith 290.*

Recommended especially for candidates for the examination for the approval of Oral Credit in New York State. Open to seniors who have received an average grade of at least 80 in their composition courses in French.

[31. **Literature of the Sixteenth Century.** Throughout the year. Credit two hours a term. Prerequisite, French 16. Mr. BISHOP. T Th 12. *Goldwin Smith 281.*

This course is conducted in French. Not given in 1942-43.]

[35. **Contemporary France.** Lectures in French. First term. Credit two hours. Mr. T Th 11. Not given in 1942-43.]

[36. **Contemporary France.** Lectures in French. Second term. Credit two hours. Mr. T Th 11. Not given in 1942-43.]

41. **Old French Texts.** Second term. Credit two hours. Primarily for graduates. Hours to be arranged. Mr. BERGIN.

[43. **Old Provençal Philology and Literature.** Second term. Credit two hours. Hours to be arranged. Mr. BERGIN. Not given in 1942-43.]

47. **Modern French Seminary.** Throughout the year. Credit two hours a term. Mr. MASON. T 2:30. *Library, French Seminary.*

Primarily for graduates.

ITALIAN

*1. **Elementary Course.** Throughout the year. Credit three hours a term. Mr. BERGIN. M W F 9. *Goldwin Smith 277.*

5. **Second year Italian.** Throughout the year. Credit three hours a term. Prerequisite, Italian 1 or its equivalent. Mr. BERGIN. T Th S 9. *Goldwin Smith 281.*

Reading of modern texts, and practice in the written and spoken language.

15. **Dante.** Throughout the year. Credit three hours a term. Prerequisite, Italian 5 or its equivalent. Mr. BERGIN. Hours to be arranged.

SPANISH

*1. **First Course for Beginners.** Throughout the year. Credit three hours a term. M W F 8, 12, T Th S 8, 10.

Students entering the University with one unit in Spanish should take the second term of Course 1.

*1b. **First Course for Beginners.** (Second half of the course). First term. Credit three hours. T Th S 11.

This course is the same as the second term of Course 1.

*3. **Second Course.** Throughout the year. Credit three hours a term. Prerequisite, Spanish 1, or second year entrance Spanish. Mr. HINCHLIFF. M W F 10, T Th S 9.

*3b. **Second Course.** (Second half of the course). First term. Credit three hours. T Th S 11.

This course is the same as the second term of Course 3.

*6. **Freshman Spanish.** Translation and composition. Throughout the year. Credit three hours a term. Prerequisite, Spanish 3, or third year entrance Spanish. M W F 9, T Th S 12.

7a. **Intermediate Composition.** First term. Credit three hours. Prerequisite, Spanish 6. Mr. RODRÍGUEZ. T Th S 11. *Goldwin Smith* 290.

7b. **Intermediate Composition.** Second term. Credit three hours. Prerequisite, Spanish 7a. Mr. RODRÍGUEZ. T Th S 11. *Goldwin Smith* 281.

Courses 7a and 7b are conducted in Spanish. Special emphasis is placed on the attainment of accuracy and fluency in both written and oral expression.

8. **Spoken Spanish.** Throughout the year. Credit one hour a term. Discussion of assigned topics. Prerequisite, consent of the instructor. Mr. DALE. W 4:15. *Goldwin Smith* 248.

10. **History of Spanish Literature.** Throughout the year. Credit three hours a term. Prerequisite, Spanish 6 or equivalent. Mr. DALE. M W F 11. *Goldwin Smith* 245.

Lectures and assigned reading.

[15. **Drama of the Golden Age.** First term. Credit three hours. Prerequisite, Spanish 6 or equivalent. Mr. DALE. T Th S 11. *Goldwin Smith* 277. Not given in 1942-43.]

[17. **Cervantes.** Second term. Credit three hours. Prerequisite, Spanish 6 or equivalent. Mr. DALE. T Th S 11. *Goldwin Smith* 277. Not given in 1942-43.]

18. **The Spanish-American Novel.** Throughout the year. Credit three hours a term. A study of the novel from 1850 to the present day. Lectures in Spanish. Reports. The reading of representative novels. Prerequisite, Spanish 6 or equivalent. Mr. DALE. T Th S 11. *Goldwin Smith* 277.

[19. **The Nineteenth Century Spanish Novel.** Throughout the year. Credit three hours a term. Prerequisite, Spanish 6 or equivalent. Mr. DALE. T Th S 11. *Goldwin Smith* 277. Not given in 1942-43.]

20. **Latin-American Culture.** Throughout the year. Credit two hours a term. Prerequisite, Spanish 3, or the consent of the instructor. Mr. HINCHLIFF. T Th 10.

The geography, ethnology, history, politics, and culture of Latin America, with special attention to its commercial relations with the United States.

[41. **Old Spanish.** Throughout the year. Credit two hours a term. Mr. DALE. Primarily for graduates. W 2:15. *Library, Spanish Seminary.* Not given in 1942-43.]

[42. **Calderón and Alarcón.** Throughout the year. Credit two hours a term. Mr. DALE. Primarily for graduates. W 2:15. *Library, Spanish Seminary.* Not given in 1942-43.]

43. **The Picaresque Novel.** Throughout the year. Credit two hours a term. Mr. DALE. Primarily for graduates. W 2:15. *Library, Spanish Seminary.*

PORTUGUESE

1. **First Course for Beginners.** Throughout the year. Credit three hours a term. Mr. DALE. T Th S 12. *Goldwin Smith* 277.

May not be taken at the same time as Spanish 1 or Italian 1.

SCANDINAVIAN LANGUAGES AND LITERATURES

For a major in Scandinavian Languages and Literatures, the following courses must be completed: (1) in Scandinavian Languages and Literatures, courses 1 and 3 or 4, and six other hours; (2) related subjects, twenty-two hours to be selected from approved courses in German, English, History, Comparative Study of Literature, Greek, Latin, and Sociology and Anthropology.

1. **Old Icelandic.** Throughout the year. Credit three hours a term. Mr. HERMANNSSON. T Th S 11. *Greek and Latin Seminary.*

2. **Modern Icelandic.** Second term. Credit three hours. Mr. HERMANNSSON. Hours to be arranged.

[3. **Danish and Dano-Norwegian.** First term. Credit three hours. Mr. HERMANNSSON. Not given in 1942-43.]

4. **Swedish.** First term. Credit three hours. Mr. HERMANNSSON. M W F 11. *Greek and Latin Seminary.*

5. **Old Norse-Icelandic Literature.** First term. Credit two hours. Mr. HERMANNSSON. W F 12. *Goldwin Smith 220.*

[6. **Modern Scandinavian Literature.** Second term. Credit two hours. Mr. HERMANNSSON. Not given in 1942-43.]

7. **Early Scandinavian Civilization and History.** Second term. Credit two hours. Mr. HERMANNSSON. W F 12. *Goldwin Smith 220.*

SLAVIC

For major work in Slavic, a student is required to complete forty-eight hours, twelve of which may be in related subjects. Slavic 1, 2, 3, and 5 are required. History 51a and 51b (Russian history) count for credit in the field, and students are urged to take these courses. Related courses should be selected, in consultation with an adviser, from the general field of the humanities.

Tutorial work will be a regular part of major study in Slavic. At the end of the senior year a comprehensive examination on the field must be taken.

For Honors in Slavic, a student must elect twelve more hours, part of which should include credit in either Slavic 20 or Slavic 30 and 31. The candidate must submit a thesis by April 1 of his senior year and take a special comprehensive examination on the field at the end of that year.

1. **Elementary Russian.** Throughout the year. Three hours each term. T Th S 11. *Boardman 214.* Mr. POSIN.

Grammar, reading, writing, elementary composition. The course is primarily designed to give the student a reading knowledge of the language.

2. **Second-Year Russian.** Throughout the year. Three hours each term. Hours to be arranged. *Boardman 214.* Mr. POSIN.

Grammatical review; reading Russian fiction; advanced composition and conversation. Prerequisite, Slavic 1 or consent of the instructor.

[3. **Third-Year Russian.** Throughout the year. Three hours each term. Hours to be arranged. *Boardman 214.* Mr. POSIN. Not given in 1942-43.]

Selected reading: analysis of grammatical construction and style; composition and discussion in Russian. Prerequisite, Slavic 2 or consent of the instructor.

[4. **Advanced Russian.** Throughout the year. Three hours each term. Hours to be arranged. *Boardman 214.* Mr. POSIN. Not given in 1942-43.]

Reading of scientific works and selected Russian critics of the nineteenth century; written reports in Russian; discussion. Prerequisite, Slavic 3 or consent of the instructor.

5. **Introduction to Russian Literature and Culture.** Throughout the year. Credit three hours a term. Mr. SIMMONS. M W F 10. *Goldwin Smith 134.*

Lectures on the principal literary and artistic monuments of Russia. A series of illustrated lectures on Russian art and architecture will be a regular part of the course. All reading will be in English translations.

6. **Pushkin.** Second term. Credit three hours. Mr. SIMMONS. T Th S 10. *Goldwin Smith —.*

Representative readings of Pushkin's poetry and prose. Prerequisite, Slavic 2 or the consent of the instructor.

7. **Dostoevski.** First term. Credit three hours. Mr. SIMMONS. T Th S 10. *Goldwin Smith* —.

An analysis of Dostoevski's principal novels and a study of their influence in foreign literatures. No knowledge of Russian is required.

[8. **Tolstoy.** First term. Credit three hours. Mr. SIMMONS. T Th S 10. *Goldwin Smith* —. Not given in 1942-43.]

A study of Tolstoy's life and artistic development. Extensive reading in his principal works. No knowledge of Russian is required.

[9. **Russian Drama.** Second term. Credit three hours. Mr. SIMMONS. T Th S 10. *Goldwin Smith* —. Not given in 1942-43.]

Evolution of the Russian drama as a literary form with special emphasis on the contributions of the Soviet theatre.

20. **Polish.** Throughout the year. Credit three hours each term. M W F. *Boardman* 214. Hours to be arranged. Mr. POSIN.

Grammar, reading, elementary composition. The course is primarily designed to give the student a reading knowledge of the language.

30. **Old Church Slavic.** First term. Credit three hours. Mr. POSIN. Hours to be arranged. *Boardman* 214.

Relation to other Indo-European languages. The textbook for this course is in German.

31. **Old Church Slavic and Early Russian.** Second term. Credit three hours. Mr. POSIN. Hours to be arranged. *Boardman* 214.

Continuation of Slavic 30. Relations of Old Church Slavic and Russian. Readings in mediaeval Russian texts.

SOCIOLOGY AND ANTHROPOLOGY

For a major in Sociology and Anthropology the following courses must be completed: (1) Sociology 2 or Social Science B or the equivalent; (2) twenty-one hours in Sociology and Anthropology; (3) in related subjects, a total of twenty-one hours in any of the following courses or Departments: (a) History (in addition to the six hours in Prescribed Subjects), (b) Government (except courses 1, 1a, and 2), (c) Psychology (except course 1), (d) Economics, (e) Philosophy (except courses A, 1a, and 2), (f) Rural Sociology, (g) Social Science C, D, (h) Education 7, 18, (i) Agricultural Economics 111, 112, (j) Mathematics 65a, 65b, 65c, 70, 400, Architecture 710-714.

Students registered in the combined Arts-Law course with a major in Sociology and Anthropology, will be required to complete a minimum of twelve hours in Sociology and twelve hours in related subjects.

2. **Introduction to Sociology and Anthropology.** Repeated in second term. Credit three hours. Not open to freshmen or to those who have credit for Social Science B. Mr. WEINTRAUB. First term, M W F 10, 12; Second term, T Th S 9. *McGraw* 201.

The role of cultural factors in shaping personality; the behavior of crowds, races, nations, social classes, and publics; the social organization of rural and urban communities. Fee, in lieu of textbook, \$2.

3. **Man and Culture.** Second term. Credit three hours. Prerequisite, Sociology and Anthropology 2, Social Science B, or equivalent. Mr. SHARP. M W F 10. *McGraw* 201.

An introduction to physical and cultural anthropology. Topics include: human origins, evolution, and racial differentiations; the prehistoric development of cultures and the cultural organization of selected Old and New World primitive communities; factors involved in cultural change.

10. **The Family.** First term. Credit three hours. Prerequisite, Social Science B, Sociology 2, or equivalent. Mr. COTTRELL. T Th S 8. *McGraw* 201.

The development of the family as a social institution in modern society; the relation between cultural changes and changes in the family pattern; the social psychology of intra-family relationships.

20. **Social Pathology.** Second term. Credit three hours. Prerequisite Sociology 2, Social Science B, or equivalent. Mr. WOODWARD. T Th S 11. *McGraw* 201.

Social and personal disorganization in modern urban society; programs and agencies that aim at social reorganization.

21. **Criminology.** First term. Credit three hours. Open to sociology majors and a limited number of others who have credit for Sociology 2, Social Science B, or equivalent. Mr. WOODWARD. T Th S 11. *McGraw* 201.

A study of the various factors making for law violation and of society's methods for dealing with the criminal and the juvenile delinquent.

Given in 1942-43 and alternate years.

[30. **Personality and the Behavior of Groups.** First term. Credit three hours. Prerequisite, Psychology 1 and Sociology 2, or Social Science B, or permission of the instructor. Mr. COTTRELL. Not given in 1942-43.]

For a new course covering the same ground as this one, see *Social Psychology* in the interdepartmental courses, page 83.

[32. **Group Morale.** Second term. Credit two hours. Prerequisite, permission of the instructor. Mr. COTTRELL. Th 2-4. *McGraw* 201. Not given in 1942-43.]

35. **Culture and Personality.** First term. Credit two hours. Prerequisites, Sociology and Anthropology 30 and 60 or the permission of the instructors. Messrs. COTTRELL and SHARP. Th 2-4. *McGraw* 205b. Given in 1942-43 and alternate years.

A comparative study of the development and functioning of human personality in various cultures. The study is made from the points of view of social psychology and social anthropology.

[40. **Population Problems.** First term. Credit three hours. Prerequisite, Sociology 2, Social Science B, or equivalent. Mr. WOODWARD. T Th S 11. *McGraw* 205b. Given in alternate years, not given in 1942-43.]

[45. **Statistical Study of Society.** First term. Credit three hours. Prerequisite, Sociology 2, Social Science B, or equivalent. Mr. STEPHAN. M W F 10. *McGraw* 205b. Not given in 1942-43.]

50. **Systematic Sociology.** First term. Credit three hours. Prerequisite, Sociology 2 or equivalent. Mr. WEINTRAUB. T Th 12 and one hour to be arranged. *McGraw* 205b.

Basic concepts of sociology. Structures and organization of society. Society as process. Social differentiation. Social typology. Relation of sociology to other social sciences.

60. **Social Anthropology.** Throughout the year. Credit three hours a term. Prerequisite, Sociology and Anthropology 2, Social Science B, or equivalent. Mr. SHARP. M W F 12. *McGraw* 201.

Problems in the analysis and comparison of the cultures of primitive communities as a basis for the study of more complex societies; the description of culture; interrelations of technology, social structure, and institutional behavior within a total culture; cultural interests and orientation.

64. **Cultures of Asia.** First term. Credit three hours. Prerequisites, Sociology and Anthropology 3 or consent of instructor. Mr. SHARP. M W F 10. *McGraw* 201.

A study of the primitive cultures of representative ethnic groups in eastern Asia, including India and Indonesia, their origins, diffusion, content, and relationships with the great civilizations of this area.

[65. **The American Indian.** First term. Credit three hours. Prerequisite, permission of the instructor. Mr. SHARP. M W F 10. *McGraw* 201. Given in alternate years. Not given in 1942-43.]

A study of the origins, differentiation, and distribution of American Indian peoples and cultures; archaeological and ethnological methods of investigating problems of culture growth and change.

68. **Physical Anthropology and Human Evolution.** Second term. Credit three hours. Prerequisite, Zoology 1 or its equivalent. Mr. PAPEZ and instructors. M W F 11. *Stimson*. (See Zoology 223.)

70. **Introduction to Statistics.** Second term. Credit three hours. Open to sophomores, juniors, and seniors; enrollment limited to fifty. Mr. GUTTMAN. M W F 11. *McGraw* 201.

A descriptive course on elementary principles and methods for the systematic collection, presentation, and interpretation of statistics. For students who desire only one course in statistics, this course will provide an acquaintance with the principal sources of statistics, a knowledge of the major uses of statistics, and a critical understanding of elementary methods of analysis and statistical reasoning.

71. **Methods of Statistical Analysis.** Throughout the year. Credit four hours a term. Prerequisites: for the First term, Mathematics 65a, 30, or equivalent, or enrollment therein; for the Second term, Mathematics 65b or equivalent, or enrollment therein. Mr. GUTTMAN. M W F 9, and one of the following laboratory periods: T 2-4, F 2-4. *McGraw* 301.

The analysis of frequency distributions of qualitative and quantitative variables: graphic representation, averages, dispersion, sampling and tests of significance, analysis

of variance, regression, correlation, elementary multivariate analysis—including the problem of index numbers in economics and of scale construction in sociology and psychology. Fee for materials, \$2 each term.

[110. **Seminar: Research in the Family.** Second term. Credit two hours. Mr. COTTRELL. Not given in 1942-43.]

[130. **Seminar: Research in Social Psychology.** First term. Credit two hours. Prerequisite, permission of instructor. Mr. COTTRELL. Given in alternate years. Not given in 1942-43.]

150. **Seminar in Social Theory.** Second term. Credit two hours. Mr. WEINTRAUB. T 2-4. McGraw 205b.

Topic for 1942-43: Social Stratification.

[156 and RS 218. **Seminar: Research Methods in Sociology.** First term. Credit two hours. Messrs. SANDERSON and COTTRELL. Not given in 1942-43.]

160. **Seminar in Anthropology.** Throughout the year. Credit two hours a term. Prerequisite, permission of the instructors. Messrs. COTTRELL and SHARP. F 2-4. McGraw 205b.

Topic for 1942-43: Problems in the study of contemporary American community cultures.

172. **Seminar: Advanced Statistical Methods.** Throughout the year. Credit two hours a term. Prerequisite, course 71 or equivalent; Mathematics 400 is recommended. Mr. GUTTMAN. W 2-4. McGraw 301.

The topic or topics for the seminar will be decided by a consensus of the students. The theory of statistical inference (fundamental sampling problems), multiple factor analysis; reliability and validity of scales, the theory of statistical prediction, and other topics are among those that might be chosen.

SPEECH AND DRAMA

Students may elect a general major, or a major with emphasis on (1) Rhetoric and Public Speaking, (2) Phonetics and Speech Training, (3) Dramatic Production. The following courses must be completed: (1) in the Department, twenty-one hours including nine hours from courses 1, 2, 10 (or 40), 32; (2) in related subjects, six hours of courses not taken in the freshman year in each of the following groups—(a) English Comparative Study of Literature; (b) History, Government, Economics, Sociology; (c) Philosophy. Of this total of thirty-nine hours, twenty-four must be in unstarred courses.

Students planning to teach Public Speaking should satisfy the basic requirements for teachers of English. For those preparing to teach English the Department recommends fifteen to eighteen hours in Speech and Drama including courses 1, 10 (or 40), 32, 41.

PUBLIC SPEAKING: ORAL READING

*1. **Public Speaking.** Repeated in second term. Credit three hours. Not open to freshmen. Messrs. WICHELS, WAGNER, MUCHMORE, DEBOER, HARDY, HUNTER, MOUAT, OWENS, and THATCHER. M W F 8, 9, 10, 11, 12; T Th S 9, 10, 11.

Planned to give the fundamentals of speech preparation and to develop simple and direct speaking. Study of principles; constant practice; conferences.

Foreign students and others whose pronunciation of English falls below the normal standard, and students with special vocal problems, are advised to confer with Mr. THOMAS before registering for Course I.

Fee for materials, \$2.

Students must enroll on registration days at *Goldwin Smith 21*.

*2. **Public Speaking.** Second term. Credit three hours. Prerequisite, Public Speaking 1. Three sections: Mr. MUCHMORE, M W F 10, *Goldwin Smith 236*, M W F 12, *Goldwin Smith 236*, Mr. WICHELS, T 11-1, Th 11, *Goldwin Smith 236*.

Practice in the composition and delivery of speeches for various occasions, in parliamentary procedure, and in group discussion; study of problems of interest and persuasion. The '86 Memorial Prize in original oratory is awarded in connection with this course.

Fee for materials, \$1.

Students must enroll on registration days at *Goldwin Smith 21*.

[7. **Discussion.** Second term. Mr. WAGNER. Not given in 1942-43.]

*10. **Oral Interpretation of Literature.** First term. Credit three hours. Not open to freshmen. Mr. ALBRIGHT. Two sections: M W F 10, M W F 12, *Goldwin Smith 134*.

Training in interpretative reading of prose and poetry; study of principles; constant practice; conferences for drill.

Students must enroll on registration days at *Goldwin Smith 21*.

[11. **Oral Interpretation of Literature.** Mr. ALBRIGHT. Not given in 1942-43.]

12. **Argument and Debate.** First term. Credit three hours. Prerequisite, Public Speaking 1. Mr. WAGNER. Two sections: M W F 11; T 11, Th 11-1. *Goldwin Smith 236*. Practice in debate on public questions; study of principles of argument; conferences. Students must enroll on registration days at *Goldwin Smith 21*.

[13. **Argument and Debate.** Mr. WAGNER. Not given in 1942-43.]

16. **Forms of Public Address.** Throughout the year. Credit three hours a term. Open to upperclassmen by consent of the instructor. Mr. WICHELS. T Th 10, and an hour to be arranged. *Goldwin Smith 221*.

Practice in composing and delivering various types of public address.

21. **History of Public Address.** Throughout the year. Credit three hours a term. Open to upperclassmen by consent of the instructor. Mr. WICHELS. M Th 2-3:15. *Goldwin Smith 245*.

A survey of ancient and modern oratory: Greek and Latin (in translation), English and American. Lectures, readings, and reports.

[23. **Theories of Public Address.** Mr. WAGNER. Not given in 1942-43.]

[24. **Public Opinion and the Method of Argument.** Mr. WICHELS. Not given in 1942-43.]

[25. **British Orators.** Mr. WAGNER. Not given in 1942-43.]

SPEECH IMPROVEMENT AND PHONETICS

*30. **Voice Training.** Repeated in second term. Credit two hours. Open to freshmen. Messrs. THOMAS and HARDY. First term: T Th 9, and an hour to be arranged; second term, two sections: T Th 9, and an hour to be arranged; T Th 11, and an hour to be arranged. *Goldwin Smith 26*.

An elementary course for the improvement of the speaking voice, with attention to the principles of voice production.

Students with special vocal problems are advised to take this course before taking course 1.

Students must enroll on registration days at *Goldwin Smith 23*.

32. **Phonetics and Speech Training.** First term. Credit three hours. Open by consent of the instructor. Mr. THOMAS. M W F 9. *Goldwin Smith 234*.

Principles of phonetics; study of English pronunciation, based chiefly on contemporary American usage; practice in phonetic analysis and, where necessary, drill for the improvement of individual speech.

Foreign students and others whose pronunciation of English falls below the normal standard are advised to take this course before taking course 1.

Students must enroll on registration days at *Goldwin Smith 23*.

33. **Regional and Historical Phonetics.** Second term. Credit three hours. Prerequisite, Public Speaking 32. Mr. THOMAS. M W F 9. *Goldwin Smith 234*.

36. **Principles of Speech Correction.** Throughout the year. Credit three hours a term. Mr. THOMAS. Prerequisite, Public Speaking 32. T 2-4, and an hour to be arranged. *Goldwin Smith 21*.

Study of principles correlated with supervised practice in the Speech Clinic.

Speech Clinic. For students working under the direction of the Department. Mr. THOMAS. *Goldwin Smith 23*. By appointment.

DRAMATIC PRODUCTION

*40. **Dramatic Interpretation.** Second term. Credit three hours. For freshmen and sophomores. Mr. ALBRIGHT. M W F 10. *Morse, Stage Laboratory*.

Analysis and interpretative reading of various types of dramatic prose and poetry; principles of stage presentation; reports, individual exercises, and group rehearsal.

Students wishing to enroll should consult the instructor by December 1.

Fee for materials, \$1.

41. **Dramatic Production: Direction.** First term. Credit three hours. Open by consent of the instructor; not open to freshmen. Mr. STANTON. M W F 11. *Morse, Stage Laboratory*.

Dramatic interpretation and the related principles of stage direction and production. Lectures, readings, reports, and drill.

42. **Advanced Dramatic Interpretation.** Throughout the year. Credit three hours a term. Primarily for graduates; open by consent of the instructor to upperclassmen majoring in the Department. Messrs. DRUMMOND and ALBRIGHT. W 2-4. *Willard Straight*, Rehearsal Room.

A fee of \$1 for materials is charged each term.

45. **Dramatic Production: Stagecraft.** Second term. Credit three hours. Open by consent of the instructor; not open to freshmen. Mr. STANTON. M W 11; T 1:40-4, or as arranged. *Morse*, Stage Laboratory.

The theory and practice of stage production; planning of small theatres; stage arrangement; problems and practice in scene construction, design, and elements of lighting. Lectures, demonstrations, reports. Laboratory fee, \$5.

45a. **Dramatic Production: Stage lighting.** First term. Credit two hours. Open by consent of the instructor to graduates and upperclassmen. Mr. STANTON. T 1:40-4, or as arranged. *Morse*, Stage Laboratory.

[46. **Stage Design and Theatre Crafts.** Not given in 1942-43.]

[47. **History of Theatrical Costume.** Not given in 1942-43.]

48. **History of the Theatre.** Second term. Credit three hours. Open by consent of the instructor; not open to freshmen. Mr. DRUMMOND. T Th S 11. *Goldwin Smith Museum of Casts*.

Lectures on the development of the theatre, with special attention to the period theatres and theatrical styles which influence modern stage presentation; complementary to a text-book and individual reports.

49. **Playwriting.** Throughout the year. Credit three hours a term. Mr. GARD. Th 2-4, and an hour to be arranged. *Goldwin Smith* 242.

Dramatic theory and practice; four one-act plays will be written each term; special emphasis on New York State themes.

49b. **Advanced Playwriting.** Mr. DRUMMOND. Hours to be arranged.

66. **Theories of Dramatic Production.** First term. Credit three hours. Open to seniors by consent of the instructor. Mr. DRUMMOND. T Th 12. *Goldwin Smith* 242.

90. **Theatre Practice.** Throughout the year. Credit two hours a term. Open by consent of the instructor to juniors majoring in the department who have taken or are taking Public Speaking 41 or 45. Hours to be arranged. Mr. STANTON.

Projects in the productions of the University Theatre.

91. **Theatre Practice.** Throughout the year. Credit two hours a term. Open by consent of the instructor to seniors who have taken one of the following: Public Speaking 41, 45, 46, 47. Hours to be arranged. Mr. STANTON.

Projects in the productions of the University Theatre.

The Department calls the attention of students interested in Dramatic Production to the courses listed under THE FINE ARTS, and to ENGLISH 23, 24, 150.

ZOOLOGY

For a major in Zoology there must be completed: (1) Zoology 1 and eighteen other hours selected from Zoology 8, 11, 16, 30, 101, 223, and Physiology 303, and (2) fifteen hours in related fields selected from Zoology, Chemistry, Biochemistry, Physics, Psychology, Entomology, Botany, Geology, Plant Breeding 101, and Bacteriology.

Choice of all courses should be made at a conference with the adviser.

Students who are planning to study medicine should make sure that they select a major that will include the entrance requirements of the medical school of their choice. Information as to advisers and entrance requirements to medical schools may be obtained at the Office of Professor V. S. LAWRENCE, White Hall.

Provisions are made for a limited number of students to undertake informal study.

For a major in Biochemistry, the following courses must be completed: (1) in Biochemistry, courses 320 and 321, or 322 and 323; (2) in related subjects, Physiology 303, Chemistry 102 or 104, 210, 375, and nine hours of electives.

Course 1, or its equivalent, is a prerequisite for all other courses in the department except 9 and 224.

1. **Introductory Zoology.** Throughout the year. Credit three hours a term. If taken after General Biology 1, credit two hours a term. Messrs. YOUNG and LEONARD, Miss MEKEEL, and assistants. Lectures: T Th 9 or 11. Laboratory, M T W Th F 1:40-4; T W F 10-12:30; S 8-10:20. Lectures, *Stimson* G-25. Laboratory, *Stimson* 102, 104, 116.

First term: a survey of invertebrate animals. Consideration of how each of the different body plans possessed by animals without backbones provides for the essential life activities. Also a discussion of the phylogenetic relationships existing between such groups of animals.

Second term: a survey of the anatomy and physiology of the vertebrate organ systems, biological principles, and evolution. Laboratory fee, \$3 a term.

8. **Elementary Taxonomy and Natural History of Vertebrates.** Throughout the year. Credit three hours a term. Lecture, M 8; *Stimson* G-25. Laboratory, M W 1:40-4 or T Th 1:40-4, *Stimson* 225. Messrs. WRIGHT, HAMILTON, and RANEY.

Lectures on fishes, amphibia, reptiles, birds and mammals, dealing with the principles of classification and nomenclature, characteristics, relationships, and bionomics of these groups. The laboratory gives practice in the identification of North American species. Field studies of the local fauna are undertaken during the fall and spring. During May, field trips will be taken at 5:30 A.M. Laboratory fee, \$4.50, including cost of transportation on field trips.

9. **General Ornithology.** Second term. Credit three hours. Lecture, W 11, *Fernow* 122. Field work and laboratory, M W 1:40-4 or T Th 1:40-4. *Fernow* 210. Messrs. ALLEN and KELLOGG.

Introduction to the study of birds, particularly the local species; their songs and habits; designed to give a working knowledge to those wishing to study birds as an avocation, and fundamental to those planning advanced work in ornithology. Laboratory work with bird skins is based on the field work. Laboratory fee, \$3.

11. **Comparative Anatomy of Vertebrates.** Throughout the year. Credit three hours a term. Mr. GILBERT and assistants. Lecture, Section I, M 9; Section II, M 10. *Stimson* G-1. Two laboratory periods weekly, W F 8-10:30; M F 1:40-4; T Th 8-10:30; T Th 1:40-4; W 1:40-4, S 8-10:30. *Stimson* 310.

A thorough study and dissection of representative vertebrate types including a fish, amphibian, reptile, bird, and mammal, together with demonstrations on species other than the types dissected. Laboratory fee, \$4.50 a term.

16. **Invertebrate Zoology.** Throughout the year. Credit three hours a term. Messrs. YOUNG and ———. Lecture, W 8. *Stimson* G-1. Laboratory, T Th 1:40-4, *Stimson* 116.

Lectures and laboratories stress the bionomics, morphology, development, and phylogeny of the invertebrates and certain taxonomical and physiological aspects of the major groups are also considered. A limited number of field trips are undertaken during the fall and spring. Laboratory fee, \$2.50 a term.

22. **Ichthyology, Advanced Systematic and Field Zoology.** First term. Credit three hours a term. Lectures, T Th 8. *Stimson* G-25. Laboratory, F 1:40-4 or S 8-10:30. *Stimson* 225. Messrs. WRIGHT, HAMILTON, and RANEY.

An amplification of the prerequisite course 8. In the lectures, special emphasis is laid on the principal phases of fish life; the taxonomy, origin, and evolution of fossil and living groups; geographical distribution; and the literature and institutions of zoology. Laboratory periods are devoted to the identification of exotic and indigenous forms. Laboratory fee, \$5, including cost of transportation on field trips.

23. **Herpetology.** Second term. Credit three hours. Lecture, T Th 8, *Stimson* G-25; Laboratory, F 1:40-4 or S 8-10:30. *Stimson* 225. Messrs. WRIGHT, HAMILTON, and RANEY.

An amplification of the prerequisite course 8. The lectures are devoted to the taxonomy, origin, and evolution of living amphibia and reptiles, and to their geographical distribution. Laboratory periods will be devoted to the identification of exotic and indigenous forms. Laboratory fee, \$5, including cost of transportation on field trips.

[25. **Mammalogy.** Second term. Credit three hours. Lectures, T Th 8. *Stimson* G-25; Laboratory, F 1:40-4 or S 8-10:30. *Stimson* 225. Mr. HAMILTON.

Discussion of principal phases of mammalian life; origin, distribution, habits, and literature. Laboratory periods are devoted to methods of field collecting, census taking, life history studies, preparation of skins and skeletons, and identification of North American species. Laboratory fee, \$5, including cost of transportation on field trips. Not given in 1942-43.]

30. **Heredity and Eugenics.** First term. Credit two hours. Mr. HUTT. Lectures, W F 10. *Stimson* G-25.

The laws of heredity; a survey of inherited characters in man; biological principles applicable to betterment of the human race.

67. **Seminar in Systematic Vertebrate Zoology.** First and second terms. Credit one hour a term. T 7:30. Mr. WRIGHT.

Life-zone plans of North America, 1817-1937. Distribution and origin of life in North America. Zoogeography of the Old World. Animal coloration. Other topics, to be announced.

101. **The Tissues: Histology and Histogenesis.** First term. Credit four hours. Messrs. ADELMANN, BARDEN, and assistants. Lectures, T Th 11. *Stimson* G-1; Laboratory, Section I, T Th 8-11; Section II, T Th 1:40-4. *Stimson* 206.

A general survey of the structure and development of the tissues. The treatment is general, designed to provide students of biology with a basis for the understanding of normal and abnormal structure of the vertebrate. Each student will prepare and receive a series of typical microscopic preparations. Laboratory fee, \$6.

102. **The Organs: Histology and Development.** Second term. Credit four hours. Prerequisite, course 101 or its equivalent. Mr. BARDEN and assistants. Lectures, W F 10. *Stimson* G-1; Laboratory, W F 1:40-4. *Stimson* 206.

A continuation of course 101. Courses 101 and 102 together give the fundamental facts of the microscopic structure and development of the body. There is also offered opportunity to gain knowledge of technique in the fixing, embedding, and sectioning of selected organs. Laboratory fee, \$6.

104. **Vertebrate Embryology.** Second term. Credit five hours. Messrs. ADELMANN, BARDEN, and assistants. Lectures, T Th 11 and lecture or conference, S 11, *Stimson* G-1; Laboratory, Section I, T Th 8-11; Section II, T Th 1:40-4. *Stimson* 206.

An introduction to general vertebrate embryology designed to provide a basis for the appreciation of biological problems. The material is treated comparatively with particular emphasis on the development of the amphibian, the bird, and the mammal. A few invertebrate forms are used where desirable for illustration. Laboratory fee, \$6.50.

[115. **Experimental Embryology.** First term. Credit two hours. Mr. ADELMANN. For seniors and graduate students. The course will be conducted as a seminar. Lectures with reports by students dealing with the experimental analysis of developmental processes. Hours to be arranged. *Stimson*. Not given in 1942-43.]

126. **Advanced Ornithology.** First term. Credit three hours. Prerequisites, 8, 9 and 11, or permission to register. Messrs. ALLEN and ————. Lecture, W 11; Laboratory, T Th 1:40-4. *Fernow* 210.

The structure and classification of birds; geographical distribution; the literature and institutions of ornithology; identification of representative birds of the world. The first part of the term is devoted to field work on the fall migration, and to the identification of birds in winter plumage. Designed primarily for students specializing in ornithology or animal biology. Laboratory fee, \$3.

136. **Seminar in Ornithology.** Throughout the year. M 7:30-9. Open to qualified undergraduates and required of all graduate students in Ornithology. Without credit. *Fernow Seminar Room*.

221. **Structure of the Human Body.** First term. Credit three hours. Prerequisite, six or more hours of Animal Biology and consent of the instructor. Mr. PAPEZ and instructors. Lectures, M W F 11, and one demonstration at an hour to be arranged. *Stimson* 324.

For students interested in nursing, dentistry, etc. or those wishing to obtain a knowledge of the structure of their own bodies. Illustrated by specimens and lantern slides.

223. **Physical Anthropology and Human Evolution.** Second term. Credit three hours. Mr. PAPEZ and instructors. M W F 11.

Four parts: eras of vertebrate evolution, with special reference to the primates; prehistoric man; physical anthropology; and modern races and peoples.

225. **Comparative Neurology.** Second term. Credit three hours. Prerequisite, six hours of Zoology. T Th 8-11. *Stimson* 324. Mr. PAPEZ.

A comparative study of the vertebrate nervous system based on dissections of brains of rabbit and dog, and study of sections of the brain stem of the cat and monkey. Laboratory fee, \$6.

226. **Cerebral Mechanisms.** Second term. Credit three hours. Prerequisite, course 225. Mr. PAPEZ and instructors. M W F 9. *Stimson* 324.

A course of study of the cerebral cortex of lower mammals and the primates with special reference to the subcortical connections and functional significance of the thalamus and various cortical areas of the human brain. By consent of the instructor. Given only if sufficient students register. Laboratory fee, \$3.

400. **Research Problems.** Ordinarily limited to seniors only. Credit and hours to be arranged. Problems may be undertaken in any phase of zoology but the consent of the instructor concerned is a prerequisite.

ADDITIONAL COURSES IN BIOLOGICAL SCIENCE

GENERAL BIOLOGY

1. **General Biology.** Throughout the year. Credit three hours a term; both terms of the course must be completed to obtain credit, unless the student is excused by the department. First term not prerequisite to second. Not open to students who have had both Zoology 1 and Botany 1. If Biology 1 is taken after either Zoology 1 or Botany 1, credit two hours a term. Lectures and demonstrations, M W 9 or 11. Roberts 392. One laboratory a week, M T W Th or F 1:40-4. Roberts 301 and 302. Mr. HOOD, Mr. NEVIN, and assistants.

An elementary course planned to meet the needs of students majoring outside of the plant and animal sciences; particularly adapted as the first year of a two-year sequence in biology for the prospective teacher of general science in the secondary schools. The course deals with the nature of life, life processes, the activities and origin of living things. It covers the organization of representative plants and animals, including man as an organism, and the principles of nutrition, growth, behavior, reproduction, heredity, and evolution. Fee, \$3.50 a term.

5. **Laboratory Methods in Biology.** Second term. Credit two or three hours. Prerequisite, Biology 1 or Zoology 1 and permission to register. Lecture and laboratory, T or F 10-12:30, and one or more periods by appointment. Roberts 302. Mr. NEVIN.

For students who intend to teach or to follow some phase of biology as a profession. This course includes such subjects as: laboratory equipment; collection, preservation, and storage of materials; sectional and non-sectional preparations of animal tissues for histological study; injection of blood vessels and embalming; preparation of bird and mammal skins for study; chart making; introduction to photography, including the preparation of lantern slides; use of micro-projector; theory and use of 16-millimeter sound and silent projection apparatus. Laboratory fee, \$5 or \$7.50.

BIOCHEMISTRY

314. **Elementary Biochemistry.** First term. Credit three hours. Prerequisite, Chemistry 375 or the equivalent. Mr. SUMNER and Mr. SOMERS. Lectures, M W 12; conferences, F 12. *Dairy Industry Building*.

The substances met with in living things, and the chief facts of digestion, metabolism, and nutrition.

314a. **Laboratory Work in Biochemistry.** First term. Credit two hours. Prerequisite or parallel course, Biochemistry 314. Mr. SUMNER and Mr. SOMERS. M W 1:40-4. *Dairy Industry Building*. Laboratory fee, \$10, breakage deposit, \$3.

325. **Advanced and Research Work in Biochemistry.** Throughout the year. Credit two or more hours. Prerequisite, Animal Biology 314 and 314a. Mr. SUMNER. Hours to be arranged. *Dairy Industry Building*. Laboratory fee, \$3 a credit hour, breakage deposit, \$5.

For additional courses see the Announcement of the Graduate School.

ENTOMOLOGY

12. **General Entomology.** First term. Credit three hours. Prerequisite, General Biology 1, Zoology 1, or Botany 1. Lectures, W F 9. *Comstock* 245. Mr. MATHESON. Practical exercises, T W Th or F 1:40-4, or S 8-10:30. *Comstock* 200. Mr. MATHESON, Mr. ———, and Mr. ———.

Lectures on the characteristics of orders, suborders, and the more important families, and on the habits of representative species; practical exercises in studying the structure of insects, their biology, their habits, and their classification. Laboratory fee, \$2.50.

51. **Parasites and Parasitism.**

52. Medical Entomology.

For details of these courses and of others in economic zoology, entomology, and limnology offered in the College of Agriculture, see the announcement of that college.

PHYSIOLOGY

***303. Human Physiology.** Either term. Credit three hours. Mr. DYE. Lectures, demonstrations, and discussion periods. M W F 10. *Moore Laboratory 101.*

An introductory course designed particularly for those students who intend to take only one course in physiology, for those who expect to teach biology in the secondary schools, and for those who desire a general knowledge of the physiological processes of the human body.

305. Endocrinology and Metabolism. First term. Credit three hours. Mr. DYE. M W F 8. Prerequisite, six or more hours each of biology and chemistry. *Moore Laboratory 101.* Study of digestion, metabolism, endocrinology, and reproduction.

306. Laboratory in Physiology. Second term. Credit three hours a term. Registration by permission. Mr. DYE and assistants.

Selected experiments to parallel course 305. Discussion period, W 4:15; Laboratory, M F 1:40-4. Laboratory fee, \$10.

INTERDEPARTMENTAL COURSES AND SEMINARS**COURSES**

The course listed below is offered cooperatively by the Department of English and the Department of Speech and Drama.

A, B. Oral and Written Expression. Throughout the year. Credit three hours a term. Open only to freshmen who are taking Introduction to Social Science A,B. Messrs. JONES, WICHELS, and IRWIN. M W F 8, 9; T Th S 9. Rooms to be announced.

Training in reading, writing, and speaking. The greater part of the exercises will develop subjects drawn from assigned essays, from current events, and from Introduction to Social Science A,B. Students who pass the course will have satisfied group I of the prescribed subjects and may elect sophomore courses in English and courses in Public Speaking which follow Public Speaking I.

The following course is offered in cooperation with the School of Education.

A, B. Human Growth and Development. Throughout the year. Not open to freshmen. Credit three hours a term. Prerequisite, a laboratory science, preferably general biology or introductory zoology. Course A (first term) is prerequisite to Course B (second term). Messrs. FREEMAN and PAPEZ and assistants. T Th S 9. *Goldwin Smith C.* (In cooperation with the School of Education.) Fee, \$1 a term.

The aim of this course is to integrate information about structural, physiological, behavioral, and intellectual aspects of growth and development. Emphasis is placed on those aspects of growth and development that will help educators to understand human individuals as functioning organisms in a social environment. The materials of the course are selected from pertinent fields, including anatomy, embryology, genetics, neurology, physiology, hygiene, sociology, cultural anthropology, and developmental psychology.

Social Science. The courses A, B, C, D listed below are offered cooperatively by the Departments of Economics, Government, and Sociology and Anthropology. They are designed for students who desire a general introductory course in social science. On the completion of a part or all of these courses, students may be admitted to advanced courses in anthropology, economics, government, and sociology under conditions set by the departments concerned.

Courses A and B are prescribed for those who expect to become candidates for the degree Master of Education. Courses C and D are additionally required of prospective teachers of the social studies.

Students electing any of these courses should apply as follows for assignment to section: the first term at Barton Hall; second term at McGraw 108.

A, B. Introduction to Social Science. Throughout the year. Open to freshmen. Course A (first term) is a prerequisite for course B (second term). Credit six hours on completion of Social Science B. M W F 10, 12; T Th S 11. Rooms to be announced. Messrs. WOODWARD, ADAMS, HUTCHINS, TRUMAN, and WEINTRAUB.

A study of the social organization of communities and of nations, designed to introduce the students to the fields of economics, government, sociology, and anthropology. Attention will be directed successively toward (1) a primitive community, (2) the New England town of the seventeenth century, (3) modern communities, urban and rural, and (4) the nation as a form of social organization. Fee for materials furnished, \$3 each term.

C. Introduction to Social Science. First term. Credit three hours. Prerequisite, Social Science B. M W F 9, 12. Rooms to be announced. Messrs. WOODWARD, ADAMS, and HUTCHINS.

A continuation of course B. Further study of the economic, social, and political organization of national states. Fee for materials furnished, \$2.

D. Introduction to Social Science. Second term. Credit three hours. Prerequisite, Social Science, C. M W F 9, 12. Rooms to be announced. Messrs. WOODWARD, ADAMS, and HUTCHINS.

A continuation of course C. National and supra-national social organization. Fee for materials furnished, \$2.

The course listed below is offered cooperatively by the Department of Psychology and the Department of Anthropology and Sociology.

Social Psychology. Throughout the year. Credit three hours a term. Prerequisite, one of the following: Psychology 1, Sociology and Anthropology 2, Social Science B, or permission of the instructors. Mr. COTTRELL (Sociology) and Mr. WHITE (Psychology). T Th S 10. McGraw 201.

(An interdepartmental course. Given in place of courses formerly listed as: Psychology 9 and 10 and Sociology and Anthropology 30.)

The first term is devoted to the study of the human personality, its development, functioning, and social adjustment. Detailed case studies are used. The second term is devoted to the study of the psychological processes in collective behavior: group solidarity and disintegration, public opinion, race prejudice, class conflict, nationalism, war, etc. The course is designed for students interested in the applied fields of social work, clinical and personnel work, political psychology and public opinion as well as for those interested in teaching and research in the psychological and social sciences. Terms may be elected separately. Fee for materials, \$2 each term.

The course listed below is offered cooperatively by the Departments of Botany, Extension Teaching, Forestry, Rural Education, and Zoology.

***100. The Conservation of Wild Life.** First term. Credit two hours. Messrs. ALLEN, ADAMS, GUISE, PALMER, A. H. WRIGHT, HAMILTON, YOUNG, MOTTLEY, KELLOGG, and SUTTON, and cooperating specialists. Lectures, T Th 11 and occasional evenings. Fernow 122.

An introduction to the wild-life resources of North America; the importance of the flora and fauna in our economic and cultural life; the history of its decimation, the present need for conservation, and the methods employed to reestablish the various species.

SEMINARS

The following seminars are offered cooperatively by members of the Departments of Economics, Government, History, Philosophy, Psychology, and Sociology and Anthropology.

[Nationalism. Throughout the year. Credit three hours a term. A seminar conducted by members of the departments of Economics (Mr. ADAMS, Chairman), Sociology (Mr. WEINTRAUB) and Psychology (Mr. WHITE). Registration by permission of the chairman. T 2-4. McGraw 205 B. Not given in 1942-43.]

The nature and development of modern nationalism, as illustrated by case studies of selected nations, especially England, Germany, and the United States. Some attention will be given to internationalism and reconstruction. The seminar will consist chiefly of discussion, based on readings.

[Utilitarianism. Throughout the year. Credit three hours a term. A seminar conducted by members of the departments of Economics, Government, History, Philosophy, and Sociology and Anthropology. Registration by permission and limited to seniors, majoring in the departments concerned. Hours to be arranged. Not given in 1942-43.]

UNIVERSITY REQUIREMENTS FOR THE DEGREE A.B.

HYGIENE AND PREVENTIVE MEDICINE

All entering students are required to report at *Barton Hall* to make an appointment for a physical examination during the registration days of the first term. Such examination shall be repeated periodically thereafter as indicated by the results of the first or subsequent examination.

Seniors are required to make an appointment for a physical examination at the *Old Armory*, during the regular registration days of their last term of residence.

All students in the first year of undergraduate courses are required to attend a lecture-recitation course in Hygiene and Preventive Medicine given once a week throughout the college year. In the College of Arts and Sciences academic credit of one hour, each term, will be given for satisfactory completion of this work. The credit of two hours for Hygiene 1 and 2 will be included in the one hundred and twenty hours required for the A.B. degree.

Hygiene 1 and 2, however, as well as Hygiene 3, 4, 5, 7, and 8 may not be counted in the ninety hours required in the College of Arts and Sciences, but must be counted as part of the thirty hours of electives allowed outside the College (see page 14).

1. **Hygiene.** First term. Required of all freshmen. Credit one hour. One lecture-recitation each week, with preliminary examination and final. The use of a text-book will be required.

For those students contemplating entering military service there will be special sections provided. In these sections military hygiene will replace much of the community hygiene and five actual hours of First Aid work will be required each term in evening periods.

Students must report for registration and assignment to section, in *Barton Hall*.

Sections for Men: Mr. SMILEY, Mr. GOULD, and Mr. SHOWACRE.

Sections for Women: Mrs. WEBB and Mrs. STELLE.

2. **Hygiene.** Second term. Required of all freshmen. Credit one hour. One lecture-recitation each week, with preliminary examination and final. The use of a text-book will be required. One section of Hygiene 2 will be given in the first term.

For those students contemplating entering military service there will be special sections provided. In these sections military hygiene will replace much of the community hygiene and five actual hours of First Aid work will be required each term in evening periods.

Students must report for registration and assignment to section at the *Old Armory*.

Sections for Men: Mr. SMILEY, Mr. GOULD, and Mr. SHOWACRE.

Sections for Women: Mrs. WEBB and Mrs. STELLE.

3. **Health Supervision of School Children.** Second term. Credit three hours. Mr. GOULD. M W F 12. *Stimson G-1*. Registration at Hygiene Office, *Old Armory*.

A practical course of lectures and demonstrations designed to familiarize the student with the facts and methods necessary for making an effective health supervision of school children. Prerequisites, suggested but not demanded: Human Physiology and Anatomy. Open to sophomores, juniors, and seniors.

4. **Hygiene: Advanced First Aid.** Credit two hours. Enrollment limited, and registration only after conference with the professor in charge. First and second terms: F 9 and one two-hour evening laboratory to be arranged. *Stimson 324*. Mr. SHOWACRE. This course includes the theory of the diagnosis and temporary treatment of the common emergencies with practical application of the essential fundamentals.

5. **Industrial Hygiene.** First term. Credit two hours. Mr. GOULD. T Th 12. *Stimson G-1*. Registration at Hygiene Office, *Old Armory*. Prerequisites, Hygiene 1 and 2.

Factory sanitation, ventilation, and illumination; occupational poisoning and disease; factory legislation; accident prevention; fatigue in industry; preventive medicine in industry under the N. R. A.

School Hygiene. Professor YOUNG. See Physical Education 123.

7. **Military Preventive Medicine.** Second term. Credit two hours. (Prerequisites, Military Science and Tactics, Basic Course 1) T Th 12. *Stimson G-1*. Mr. D. H. DEYOE.

A study of the principles of military hygiene and sanitation as applied to permanent and temporary military camps. Not given in 1942-43.]

8. **Hygiene: Mental Hygiene.** First term. Credit three hours. Prerequisites, Hygiene 1 and 2. M W F 11. *Stimson G-1*. Mrs. STELLE. Second term. Credit three hours. M W F 11. *Stimson G-1*. Mr. DARLING.

The relationship of the structure of the total personality to environmental maladjustment as evidenced by physical and social behavior; a discussion of the more common personality difficulties and the role of insight in the prevention of these.

MILITARY SCIENCE AND TACTICS

1. **Basic Course.** *Required. Throughout the year. The complete course covers two years. Three hours a week, either M T W or Th 1:40-4:10 P.M. *Barton Hall.*

The course of training is that prescribed by the War Department for Senior Division Units of the Reserve Officers Training Corps for basic students. Instruction is offered in Field Artillery. For details concerning the course see the Announcement of the Department of Military Science and Tactics.

*Required of all able-bodied first and second year male students of the College of Arts and Sciences who are American citizens and candidates for a baccalaureate degree. The requirements of Military Science and Tactics must be completed in the first terms of residence; otherwise the student will not be permitted to register again in the University without the consent of the faculty.

Advanced standing. With the approval of the Department of Military Science and Tactics, credit may be allowed a student for all or part of the Basic Course requirement, upon presentation of evidence of satisfactory work completed at an approved institution.

2. **Advanced Course.** Elective. Throughout the year. Credit two hours a term. The complete course covers two years. Prerequisite, Basic Course. Five hours a week, and in addition attendance at a Training Camp of three months duration. Hours by assignment. *Barton Hall.*

The course of training is that prescribed by the War Department for Senior Division Units of the Reserve Officers Training Corps for advanced students. Instruction is offered in Field Artillery.

Upon successful completion of the Advanced Course a student may be commissioned as a Reserve Officer of the United States Army, in the appropriate arm, upon the recommendation of the Professor of Military Science and Tactics. For details concerning the course see the Announcement of the Department of Military Science and Tactics.

PHYSICAL TRAINING FOR MEN

1. **For Freshmen Excused from Military Science.** Throughout the year. Three periods a week. Activities squad work and prescribed exercises. Mr. O'CONNELL and assistants.

2. **For Sophomores Excused from Military Science.** Throughout the year. Three periods a week. Activities, squad work, and prescribed exercises. Mr. O'CONNELL and assistants.

3. **For Juniors and Seniors.** Building up and corrective exercises as prescribed by the Medical Examiners as a result of the physical examination required of all students in the University. Mr. N. KRAFT.

4. **Wrestling, Boxing, Fencing, Swimming.** Instruction 3-6 daily except Saturday. Mr. O'CONNELL, Mr. COINTE, Mr. LITTLE.

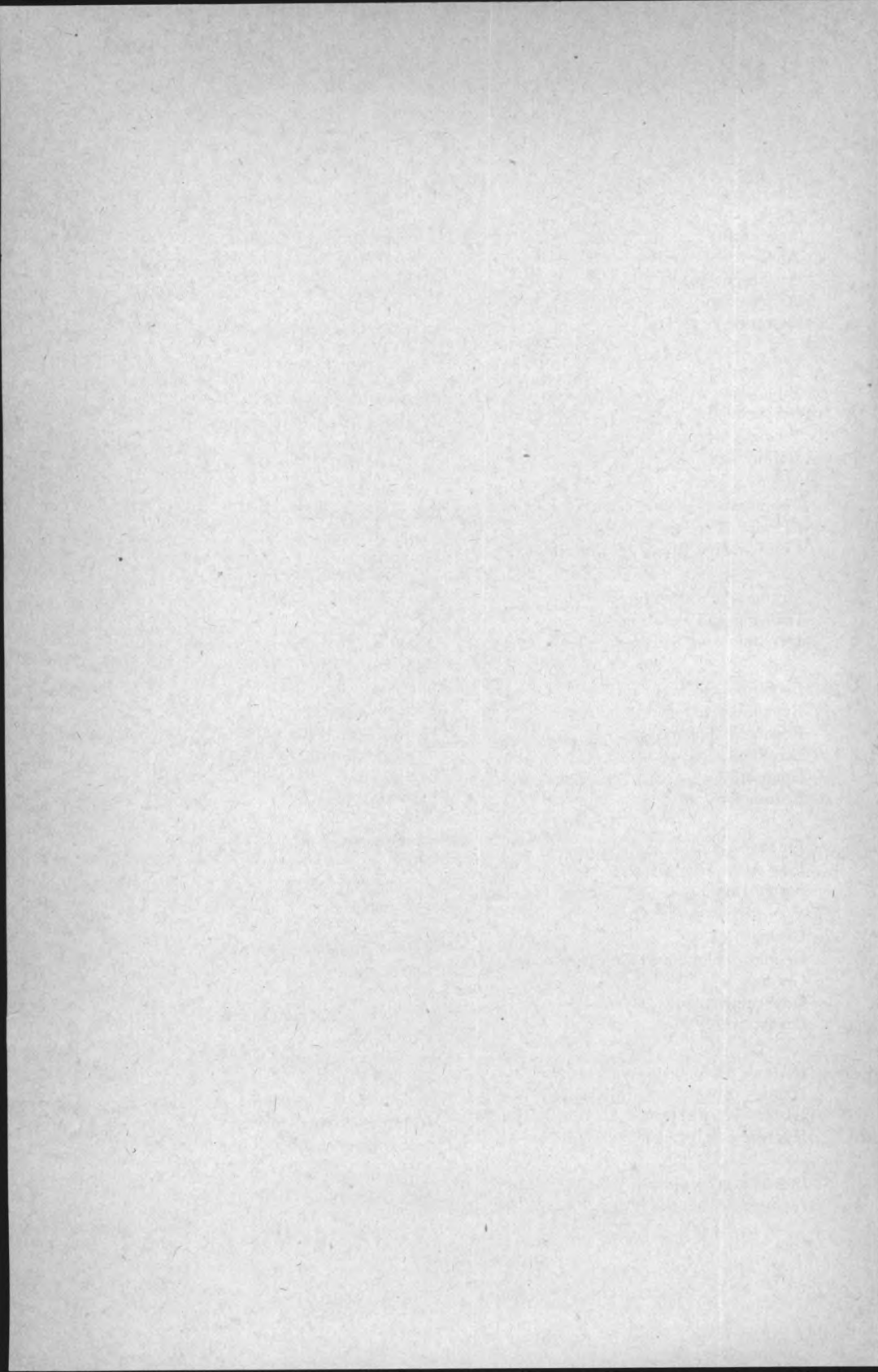
PHYSICAL EDUCATION FOR WOMEN

6. **Physical Education for Women (Freshmen).** Throughout the year. Three periods a week. Misses BATEMAN, STEWART, ATHERTON, DORNEY, and Mrs. BAIRD.

The year is divided into quarters: outdoor seasons in spring and fall, two indoor seasons during the winter. Activities include: archery, badminton, baseball, basketball, canoeing, fencing, fundamentals, folk, tap, and modern dance, field hockey, golf, individual gymnastics, outing, riding, riflery, soccer, swimming, tennis, volley-ball. See department bulletin for program.

7. **Physical Education for Women (Sophomores).** Throughout the year, three periods a week. Misses BATEMAN, STEWART, ATHERTON, DORNEY, and Mrs. BAIRD.

For description, see course 6.



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